

PUSHPAGIRI COLLEGE OF PHARMACY

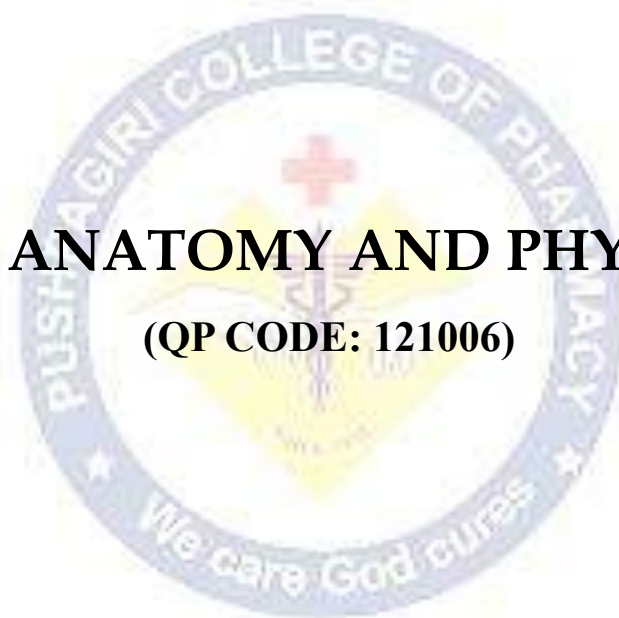
MEDICITY CAMPUS, TIRUVALLA – 689107

The logo of Pushpagiri College of Pharmacy is a circular emblem. It features a central caduceus (a staff with two snakes and wings) and a red cross above it. The text "PUSHPAGIRI COLLEGE OF PHARMACY" is written around the top inner edge of the circle, and "We care God cures" is written around the bottom inner edge. Two small stars are positioned on the left and right sides of the bottom edge.

**FIRST SEMESTER B.PHARM
QUESTION BANK**

HUMAN ANATOMY AND PHYSIOLOGY - I

(QP CODE: 121006)



UNIT I**Introduction to human body /Cellular level of organization /Tissue level of organization**

1. Discuss the structure of cell with its characteristic feature. [05 Marks] **(June 2023)**
2. The nervous tissue. [05 Marks] **(June 2023)**
3. Passive transport in cell membrane. [02 Marks] **(June 2023)**
4. Draw neat labeled diagram of cell. Explain the structure and functions of principal organelles. [10 Marks] **(March 2023)**
5. Discuss intracellular signaling pathways. [05 Marks] **(March 2023)**
6. Discuss the function of Ribosome and Lysosomes. [05 Marks] **(Sept 2022)**
7. Explain epithelial tissue. [05 Marks] **(Sept 2022)**
8. Explain active transport system across the cell membrane. [05 Marks] **(Sept 2022)**
9. Define cytology. [02 Marks] **(Sept 2022)**
10. Functions of mitochondria. [02 Marks] **(Sept 2022)**
11. Characteristics of connective tissue. [02 Marks] **(Sept 2022)**
12. Homeostasis in biology. [02 Marks] **(Sept 2022)**
13. Discuss the transport systems across the cell membrane. [05 Marks] **(June 2022)**
14. Functions of mitochondria. [02 Marks] **(June 2022)**
15. Explain mechanism of transport across cell membrane. . [05 Marks] **(Oct 2021)**
16. Connective tissue. [02 Marks] **(Oct 2021)**
17. Explain the steps in endocrine intracellular signaling. [02 Marks] **(Oct 2021)**
18. Principles of cell communication. [02 Marks] **(Oct 2021)**
19. Define homeostasis. [02 Marks] **(Oct 2021)**
20. Describe the structure and functions of epithelial cells. [05 Marks] **(Feb 2021)**
21. Explain cell junctions. [02 Marks] **(Feb 2021)**
22. Write about muscular tissue. [05 Marks] **(Feb 2020)**
23. Structure and functions of connective tissue. [05 Marks] **(Feb 2020)**
24. Write the functions of cell. [02 Marks] **(Feb 2020)**
25. Write the paracrine intracellular signaling. [02 Marks] **(Feb 2020)**
26. Describe the process of transport mechanism across the cell membrane. [05 Marks] **(Aug 2019)**
27. Transitional epithelium. [05 Marks] **(Aug 2019)**
28. Cytoplasm. [02 Marks] **(Aug 2019)**
29. Structure of cardiac muscle tissue. [02 Marks] **(Aug 2019)**
30. Explain the general principles of cell communication. Describe the intracellular signaling pathway activation by extracellular signal molecule. [10 Marks] **(June 2019)**

31. Describe the structure and functions of ciliated simple columnar epithelium and pseudostratified columnar epithelium. [05 Marks] **(June 2019)**
32. Classify the tissue. Mention the types of connective tissue, their location and functions.[10 Marks] **(Feb 2019)**
33. Characteristics features of muscular tissues. [02 Marks] **(Feb 2019)**

UNIT II

Integumentary system / skeletal system/ Joints

1. Explain the fibrous and cartilaginous joint. [05 Marks] **(June 2023)**
2. Explain the bones of the skull. [05 Marks] **(June 2023)**
3. Functions of skin. [02 Marks] **(June 2023)**
4. Structure of voluntary muscle. [02 Marks] **(June 2023)**
5. Sarcomere. [02 Marks] **(June 2023)**
6. Ball and socket joint. [02 Marks] **(June 2023)**
7. Explain the physiology of skin. [05 Marks] **(March 2023)**
8. Describe the structure of synovial joints. [05 Marks] **(March 2023)**
9. Classify joints with examples. [05 Marks] **(Sept 2022)**
10. Discuss structure and function of skin. [05 Marks] **(Sept 2022)**
11. Muscle contraction. [05 Marks] **(Sept 2022)**
12. Mention the bones of lower limb. [02 Marks] **(Sept 2022)**
13. Explain the neat structure of skull bone, their joints and its functions. [10 Marks] **(June 2022)**
14. Draw the structure of human skin with label. [05 Marks] **(June 2022)**
15. Scapula. [05 Marks] **(June 2022)**
16. Types of synovial joint. [05 Marks] **(June 2022)**
17. Cervical segment of vertebral column. [02 Marks] **(June 2022)**
18. Parts of lower limb. [02 Marks] **(June 2022)**
19. Explain about the physiology of skeletal muscle contraction. [10 Marks] **(Oct 2021)**
20. Anatomy and functions of skin. [05 Marks] **(Oct 2021)**
21. Explain the division of skeletal system. [02 Marks] **(Oct 2021)**
22. Neuromuscular junction. [05 Marks] **(Feb 2021)**
23. Types of bone. [02 Marks] **(Feb 2021)**
24. Types of joints movements .[02 Marks] **(Feb 2021)**
25. Classify joints, explain about types of synovial joints. [05 Marks] **(Feb 2020)**
26. Name the bones of cranium.[02 Marks] **(Feb 2020)**
27. Define articulation and arthrology. [02 Marks] **(Feb 2020)**
28. Functions of skin. [02 Marks] **(Feb 2020)**
29. Explain the various types of synovial joints. [05 Marks] **(Aug 2019)**

30. Discuss the bone cells with its functions. [05 Marks] (**Aug 2019**)
31. Draw a labeled diagram of skin. [02 Marks] (**Aug 2019**)
32. Neuromuscular Junction. [02 Marks] (**Aug 2019**)
33. Joints of upper extremity in human body. [02 Marks] (**Aug 2019**)
34. Neat labelled diagram of femur bone with its function. [05 Marks] (**June 2019**)
35. Hip joint. [05 Marks] (**June 2019**)
36. Types of muscles. [02 Marks] (**June 2019**)
37. Diseases of the bone. [02 Marks] (**June 2019**)
38. Bones of thoracic cavity. [02 Marks] (**June 2019**)
39. Functions of skin. [02 Marks] (**June 2019**)
40. Mechanism of skeletal muscle contraction. [05 Marks] (**Feb 2019**)
41. Neuromuscular junction. [05 Marks] (**Feb 2019**)
42. Types of joints and their movements. [02 Marks] (**Feb 2019**)
43. Classification of bones with example. [02 Marks] (**Feb 2019**)

UNIT III

Body fluids and blood /lymphatic system

1. Discuss the blood groups with Rh factor. [05 Marks] (**June 2023**)
2. The composition, formation and function of lymph. [05 Marks] (**June 2023**)
3. Composition of tissue fluids. [02 Marks] (**June 2023**)
4. Composition of plasma. [02 Marks] (**June 2023**)
5. Explain ABO system of blood grouping. [05 Marks] (**March 2023**)
6. Explain the composition and functions of lymph. [05 Marks] (**March 2023**)
7. Functions of RBC. [05 Marks] (**March 2023**)
8. Reticulo- endothelial system. [02 Marks] (**March 2023**)
9. Explain Rh factor and why is it important. [02 Marks] (**March 2023**)
10. Normal value of • BP • Hb% • Clotting time • WBC. [02 Marks] (**March 2023**)
11. Explain the mechanism and factors that influence coagulation. [10 Marks] (**Sept 2022**)
12. Functions of thymus gland. [02 Marks] (**Sept 2022**)
13. Define megaloblastic anemia. [02 Marks] (**Sept 2022**)
14. Enumerate the cellular components of blood and their functions. Add a note on iron deficiency anemia.
[10 Marks] (**June 2022**)
15. Blood grouping and its significance. [05 Marks] (**June 2022**)
16. Mechanism of coagulation. [05 Marks] (**June 2022**)
17. Structure of lymph node and its function. [02 Marks] (**June 2022**)

18. Types of leucocytes. [02 Marks] **(June 2022)**
19. Explain about lymph node. [05 Marks] **(Oct 2021)**
20. Mechanism of coagulation. [05 Marks] **(Oct 2021)**
21. Define thrombocytopenia. [02 Marks] **(Oct 2021)**
22. Significance of ESR. [02 Marks] **(Oct 2021)**
23. Importance of blood grouping. [02 Marks] **(Oct 2021)**
24. Explain in detail about the steps involved in the formation of RBC. [10 Marks] **(Feb 2021)**
25. Explain the composition and functions of blood. [05 Marks] **(Feb 2021)**
26. Explain lymphatic circulation with a neat diagram. [05 Marks] **(Feb 2021)**
27. Define anemia. Enlist types of anemia. [02 Marks] **(Feb 2021)**
28. Explain Significance of Blood Transfusion. [02 Marks] **(Feb 2021)**
29. Formation and fate of hemoglobin. [05 Marks] **(Feb 2020)**
30. Explain about spleen. [05 Marks] **(Feb 2020)**
31. Define polycythemia and sickle cell anaemia. [02 Marks] **(Feb 2020)**
32. Explain the process of development of red blood cells. [05 Marks] **(Aug 2019)**
33. Lymphatic tissue and its function. [05 Marks] **(Aug 2019)**
34. Composition of intracellular body fluids. [02 Marks] **(Aug 2019)**
35. Aplastic anemia. [02 Marks] **(Aug 2019)**
36. Formation, circulation and composition of lymph. [05 Marks] **(June 2019)**
37. Rh factor and ABO blood group. [05 Marks] **(June 2019)**
38. Functions of reticulo-endothelial system. [02 Marks] **(June 2019)**
39. Hemostasis. [02 Marks] **(June 2019)**
40. What is sickle cell anemia. [02 Marks] **(June 2019)**
41. Explain the process of erythropoiesis and mention the role of erythropoietin. [05 Marks] **(Feb 2019)**
42. Blood groups and their importance. [05 Marks] **(Feb 2019)**
43. Leucocyte disorder. [02 Marks] **(Feb 2019)**
44. Name the disorders of vitamin K and iron. [02 Marks] **(Feb 2019)**

UNIT- IV

Peripheral nervous system/special senses

1. Draw a neat labelled diagram of eye and explain the physiology of vision. [10 Marks] **(June 2023)**
2. Discuss the effect of stimulation of parasympathetic nerves on various organs in ANS. [05 Marks] **(June 2023)**
3. List out the cranial nerves. [02 Marks] **(June 2023)**

4. Discuss the structure and functions of sympathetic and parasympathetic nervous system. [10 Marks] **(March 2023)**
5. Discuss the physiology of vision. [05 Marks] **(March 2023)**
6. Name the bones of cranium. [02 Marks] **(March 2023)**
7. What are neurotransmitters. [02 Marks] **(March 2023)**
8. Draw neat labeled diagram of neuron. [02 Marks] **(March 2023)**
9. Mention the parts of eye. [02 Marks] **(March 2023)**
10. Describe about physiology of hearing. [05 Marks] **(Sept 2022)**
11. Define parasympathetic and sympathetic nervous system. [02 Marks] **(Sept 2022)**
12. 7. Retinoblastoma and glaucoma. [02 Marks] **(Sept 2022)**
13. Describe the physiology of vision. [02 Marks] **(June 2022)**
14. Auditory ossicles. [02 Marks] **(June 2022)**
15. Classify cranial nerves, explain in detail about innervations and functions. [10 Marks] **(Oct 2021)**
16. Describe the anatomy and functions of eye. [05 Marks] **(Oct 2021)**
17. Explain parasympathetic nervous system. [05 Marks] **(Oct 2021)**
18. Nasal septum. [02 Marks] **(Oct 2021)**
19. Explain the functions of spinal nerves. [02 Marks] **(Oct 2021)**
20. Explain the difference between Sympathetic Nervous system and Parasympathetic nervous system. [05 Marks] **(Feb 2021)**
21. Anatomy and functions of ear. [05 Marks] **(Feb 2021)**
22. Explain the structure and functions of neuron. [02 Marks] **(Feb 2021)**
23. Anatomy of tongue. [02 Marks] **(Feb 2021)**
24. List out any three cranial nerves and its function. [02 Marks] **(Feb 2021)**
25. Describe the anatomy of ear and explain the mechanism of hearing. [10 Marks] **(Feb 2020)**
26. Write about sympathetic nervous system. [05 Marks] **(Feb 2020)**
27. Write about taste buds. [02 Marks] **(Feb 2020)**
28. Write about nervous tissue. [02 Marks] **(Feb 2020)**
29. Write the anatomy of spinal nerve. [02 Marks] **(Feb 2020)**
30. List out the cranial nerves and explain its central and peripheral connections with its function. [10 Marks] **(Aug 2019)**
31. Explain the taste buds of the tongue. [05 Marks] **(Aug 2019)**
32. Functions of retina. [02 Marks] **(Aug 2019)**
33. Describe the parts and functions of cranial nerves. [05 Marks] **(June 2019)**
34. Functions of sympathetic nervous system. [05 Marks] **(June 2019)**

35. Draw the structure of ear and label. How the impulses are formed and conducted for hearing sensation. [10 Marks] **(Feb 2019)**
36. Functions of parasympathetic nervous system. [05 Marks] **(Feb 2019)**
37. Mechanism of equilibrium. [05 Marks] **(Feb 2019)**
38. Mention the parts and functions of vertebral column. [05 Marks] **(Feb 2019)**
39. What are rods and cones. [02 Marks] **(Feb 2019)**
40. Functions of neurons. [02 Marks] **(Feb 2019)**
41. Diseases of the eye. [02 Marks] **(Feb 2019)**

UNIT- V

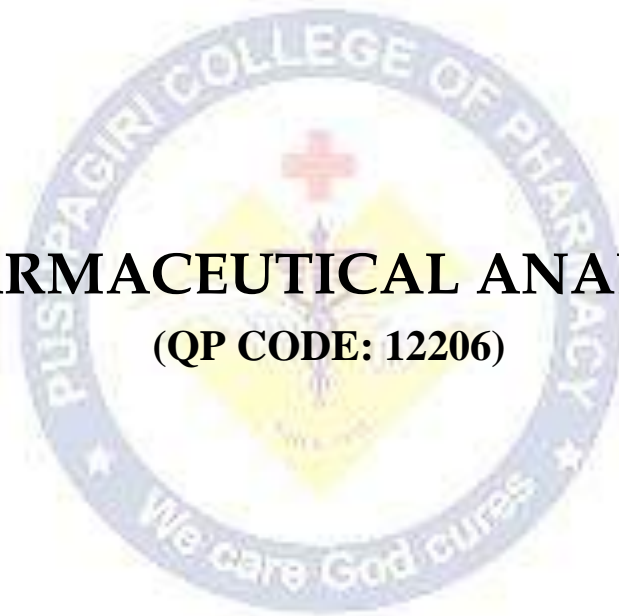
Cardiovascular system

1. Describe the interior structure of heart with its conducting system. [10 Marks] **(June 2023)**
2. Radial pulse. [02 Marks] **(June 2023)**
3. Angina pectoris. [02 Marks] **(June 2023)**
4. Draw neat labeled diagram of heart and its functions. [05 Marks] **(March 2023)**
5. Define cardiac arrhythmia and Angina pectoris. [02 Marks] **(March 2023)**
6. Electrocardiogram. [02 Marks] **(March 2023)**
7. Define cardiac cycle and explain the principle events. [10 Marks] **(Sept 2022)**
8. Define hypertension and atherosclerosis. [02 Marks] **(Sept 2022)**
9. Circulatory system of heart. [02 Marks] **(June 2022)**
10. Define cardiac output. [02 Marks] **(June 2022)**
11. Functions of vein. [02 Marks] **(June 2022)**
12. Disorders of heart. [02 Marks] **(June 2022)**
13. Explain the regulation of B.P. [05 Marks] **(Oct 2021)**
14. Explain the structure and functions of arteries. [02 Marks] **(Oct 2021)**
15. Describe the events in cardiac cycle with a neat diagram. [10 Marks] **(Feb 2021)**
16. ECG. [05 Marks] **(Feb 2021)**
17. Define cardiac output and blood pressure. [02 Marks] **(Feb 2021)**
18. Define Arrhythmia, myocardial infraction and congestive heart failure. [02 Marks] **(Feb 2021)**
19. Explain the conduction system of heart with a neat labelled diagram. [10 Marks] **(Feb 2020)**
20. Difference between arteries and veins. [05 Marks] **(Feb 2020)**
21. Write the pulmonary circulation. [02 Marks] **(Feb 2020)**
22. Draw and explain the structure of heart with various phases of cardiac cycle. [10 Marks] **(Aug 2019)**
23. Heart sounds. [02 Marks] **(Aug 2019)**
24. Congestive cardiac failure. [02 Marks] **(Aug 2019)**
25. Explain anatomy of heart with the neat sectional diagram. Add a note on cardiac cycle.[10 Marks]**(June 2019)**

26. Define blood pressure and mention its normal value. [02 Marks] **(June 2019)**
27. Heart sounds. [02 Marks] **(June 2019)**
28. Electrocardiogram. [02 Marks] **(June 2019)**
29. Types of valves in the heart. [02 Marks] **(Feb 2019)**
30. Types of cartilage. [02 Marks] **(Feb)**



PHARMACEUTICAL ANALYSIS
(QP CODE: 12206)



UNIT I**Pharmaceutical analysis – definition and scope**

1. Define molarity. (02 Marks) [**March 2023, June 2022**]
2. Define significant figure. (02 Marks) [**March 2023, September 2022, June 2022, October 2021**]
3. Write primary standards used in standardization of
 - Ceric ammonium sulphate • NaOH (02 Marks) [**June 2023**]
4. Write method of preparation and standardization of 0.1M potassium permanganate. (05 marks) [**June 2023, August 2019**]
5. Define primary standards. Give two examples. (02 Marks) [**March 2023, June 2019, February 2019, September 2022, February 2020**]
6. Distinguish between precision and accuracy. (02 Marks) [**June 2023, February 2019**]
7. Define molarity. (02 Marks) [**June 2023**]
8. Define precision. (02 Marks) [**June 2022**]
9. Explain secondary standard. Give examples. (02 Marks) [**June 2022, October 2021**]
10. Classify acid-base titrations. Write one indicator each for different types of acid base titration. (05 marks) [**September 2022**]
11. Define different methods of expressing concentration. Write methodology to prepare. • 100 ml of 1N sulphuric acid solution • 250 ml of 0.1N sulphuric acid solution. (10 mark). [**September 2022**]
12. Enumerate primary standards used in oxidation-reduction titrations (02 Marks) [**September 2022**].
13. Write method of preparation and standardization of 0.1M sodium thiosulphate. (05 Marks) [**June 2022**] [**October 2021**]
14. Source of errors (02 Marks) [**October 2021**]
15. Qualities of primary standards (02 Marks) [**February 2021**]
16. Give method of preparation and standardization of ceric ammonium sulphate. (05 Marks) [**February 2021**]
17. Types of errors (02 Marks) [**February 2020**]
18. Write on expressions of concentrations (05 Marks) [**February 2020**]
19. Write on accuracy, precision and significant figure (05 Marks) [**February 2020**]
20. Explain the various methods of expressing concentration (05 Marks) [**June 2019, February 2019**]
21. Define accuracy. (02 Marks) [**June 2019, August 2019**]
22. How would you prepare and standardize a one molar (1M) solution of sodium hydroxide. (02 Marks) [**February 2019**]

Errors

1. Define error and explain the types of error. Explain the method of minimizing errors in pharmaceutical analysis. (05 Marks) [**March 2023**]

2. What are errors in pharmaceutical analysis. Write their types. How can they be minimized. (05 Marks) [**June 2023, August 2019**]
3. Explain types of errors citing appropriate examples in pharmaceutical analysis. (05 Marks) [**June 2022**]
4. Explain various sources and minimization of error in pharmaceutical analysis. (10 marks) [**February 2021**]
5. What are the different sources of error (05 Marks) [**February 2019**]

UNIT II

Acid base Titration

1. Explain the theories of acid-base indicators. (10 Marks) [**March 2023**]
2. Explain types of neutralization curves with appropriate examples. (05 Marks) [**June 2023**]
3. What are neutralization titrations. (05 Marks) [**March 2023**]
4. Classify acid-base titrations. Write one indicator each for different types of acid base titration. (05 Marks) [**September 2022**]
5. Describe briefly theory of acid base indicators. (05 Marks) [**June 2022**]
6. Example of acidimetric titration. (02 Marks) [**June 2022**]
7. Theory of acid-base indicators. (05 Marks) [**February 2021**]
8. Solvents in non-aqueous titrations. (05 Marks) [**February 2020**]
9. Universal indicator. (02 Marks) [**February 2020**] [**August 2019**]
10. Explain the different types of acid-base titrations with the help of neutralization curves. (10 Marks) [**June 2019**]
11. Discuss in detail the neutralization curves for acid-base titrations. Indicate the choice of indicators in each case. (10 Marks) [**August 2019**]
12. Explain the principle involved in alkalimetric titration by non-aqueous method. (05 Marks) [**June 2019**]
13. Discuss the nature of non-aqueous titrants used in the titration of weak acids. (05 Marks) [**February 2019**]
14. What are mixed indicators. Give one example. (02 Marks) [**February 2019**]
15. What is meant by levelling effect in non-aqueous titrations. (02 Marks) [**February 2019**]

Non aqueous titration

1. Explain with reaction the standardization of per chloric acid. (05 Marks) [**March 2023**]
2. Explain advantages of non-aqueous titration. Explain the principle involved in non-aqueous titration of sodium benzoate. (05 Marks) [**June 2023**]
3. What are the precautions to be taken in the preparation of per chloric acid. (02 Marks) [**March 2023**]
4. Explain aprotic solvent. Give examples. (02 Marks) [**June 2023**]
5. Write principle involved in non-aqueous determination of weak acids and weak bases. Add a note on pM indicators. (10 Marks) [**September 2022**]

6. What is a non-aqueous titration. Explain the principle involved in non-aqueous titration of ephedrine hydrochloride. (05 Marks) **[June 2022]**
7. Explain amphiprotic solvent. Give example. (02 Marks) **[September 2022]**
8. What is a protic solvent. Give examples. (02 Marks) **[June 2022]**
9. Explain acidimetry and alkalimetry titration by non-aqueous methods. (10 Marks) **[October 2021]**
10. Theory and solvents used in non-aqueous titration. (05 Marks) **[February 2021]**
11. Explain estimation of sodium benzoate and ephedrine hydrochloride. (10 Marks) **[February 2020]**
[August 2019]
12. Discuss in detail how each of the following non-aqueous titrations is performed weakly acidic drug and weakly basic drug. (10 Marks) **[February 2019]**
13. Explain Volhard method of determination of halides. (05 Marks) **[February 2019]**
14. Any two advantages of non-aqueous titrations (02 Marks) **[June 2019]**

UNIT III

Precipitation Titrations

1. Explain Mohr's method.(05 Marks) **[March 2023]**
2. Explain modified volhard's method. (02 Marks) **[June 2023]**
3. Describe the principle involved in Fajan's method with appropriate example.(05 Marks) **[September 2022]**
4. Explain the principle involved in determination of sodium chloride by precipitation titration method. (05 Marks) **[June 2022]**
5. Volhard's method with suitable example. (05 Marks) **[October 2021]**
6. Explain types of precipitation titrations. (05 Marks) **[February 2021]**
7. Explain methods of precipitation titrations. (10 Marks) **[February 2020]**
8. What are precipitation titrations. Give a detailed account of Mohr's method and Volhard's method. (10 Marks) **[June 2019]**
9. What is Fajan's method for the determination of halides. (02 Marks)**[August 2019]**
10. What are adsorption indicators. (02 Marks)**[February 2019]**

Complexometric Titration

1. What are pM indicators. Give examples. (02 Marks) **[March 2023]**
2. Define ligand. Give examples. (02 Marks) **[March 2023]**
3. Explain the principle involved in determination of calcium gluconate. (05 Marks) **[June 2023]**
4. Describe briefly theory of metal-ion indicators with suitable example. (05 Marks) **[June 2023]**
5. Masking and demarking agents. (05 Marks) **[March 2023]**
6. What are complexometric titrations. With examples describe types of complexometric titrations. (10 Marks) **[June 2022]**
7. What are masking and demasking agents in complexometric. (02 Marks)**[September 2022]**

8. With suitable examples explain the complexometric titration of pharmaceuticals. (10 Marks) [February 2021]
9. Assay method of metal ions. (05 Marks) [October 2021]
10. Masking agents. (02 Marks). [June 2019, October 2021]
11. Need of demasking agent. (02 Marks) [February 2021, February 2020]
12. Metal ion indicators. (02 Marks) [February 2021]
13. Metal ion indicators. (05 Marks) [February 2020]
14. pM indicators. (05 Marks) [June 2019]
15. Define ligand and coordination number. (02 Marks) [August 2019]
16. What is a sequestering agent. (02 Marks) [February 2019]
17. What is a chelate. Give one example. (02 Marks) [February 2019]

Gravimetry

1. Explain gravimetric analysis. Explain the various steps involved in gravimetric analysis. (10 marks) [March 2023]
2. Write steps involved in gravimetric estimation of barium sulphate. (05 Marks) [June 2023, February 2019]
3. Explain co-precipitation. (02 Marks) [March 2023]
4. Explain co-precipitation. (02 Marks) [June 2023]
5. Explain post precipitation. (02 Marks) [June 2022]
6. Write steps involved in estimation of a salt by gravimetric analysis. (05 Marks) [September 2022]
7. Explain gravimetric method of estimation of barium sulphate. (05 Marks) [October 2021]
8. Explain Co-precipitation. (02 Marks) [October 2021]
9. Gravimetry. (02 Marks) [February 2021]
10. Explain the estimation of barium sulphate by gravimetry. (05 Marks) [June 2019]
11. Explain the principle of gravimetric analysis. What are the steps involved in gravimetric analysis. (05 Marks) [August 2019]
12. What is a diazotization titration. Give one example. (05 Marks) [August 2019]
13. What are cerimetric titrations. Explain with one example. (05 Marks) [February 2019]
15. What is post precipitation. (02 Marks) [June 2019]

Diazotisation Titration

1. Example for diazotization titration. (02 Marks) [June 2023]
2. With example, write principle involved in diazotization titration. (05 Marks) [June 2022, October 2021, February 2020]
3. Diazotisation titration. (02 Marks) [February 2021]

UNIT IV

Redox Titrations

1. List out the various redox titrations. Explain the principle involved in cerimetry. (02 Marks) [March 2023]
2. Write Nernst equation and explain the terms involved in it. (02 Marks) [June 2023]
3. Define oxidizing and reducing agents. Give examples. (02 Marks) [March 2023]

4. Difference between iodometry and iodimetry. (02 Marks) [June 2023]
5. Define reduction. Name any two reducing agents. (02 Marks) [September 2022].
6. Explain dichrometry. (02 Marks) [September 2022]
7. Explain the advantages of cerimetry. (02 Marks) [June 2022]
8. With an example, explain the principle of iodometric titration. (05 Marks) [September 2022]
9. Nernst equation. (02 Marks) [October 2021, June 2019, August 2019]
10. Iodometric titration. (02 Marks) [February 2021]
11. Use of dichrometry. (02 Marks) [February 2021]
12. Example of redox titration. (02 Marks) [October 2021]
13. Application of potassium iodate in titration. (02 Marks) [February 2020]
14. Cerimetry. (02 Marks) [February 2020]
15. Discuss in detail any four types of redox titrations. (10 Marks) [February 2019]
16. Explain iodimetric titrations. (05 Marks) [February 2020]
17. What are redox indicators. (02 Marks) [June 2019]
18. What do you mean by iodometry. (02 Marks) [June 2019]
19. Define oxidation and reduction. (02 Marks) [August 2019]
20. Give one example of an iodometric titration. (02 Marks) [August 2019]
21. Applications of redox titrations. (05 Marks) [June 2019]
22. Explain in detail a titration using potassium iodate. (05 Marks) [August 2019]

UNIT V

Conductometry

1. Explain conductivity cell. (02 Marks) [June 2023]
2. Explain the principle involved in conductometric titration of a strong acid with weak base. (05 Marks) [June 2022]
3. Define conductance. How is it expressed. (02 Marks) [September 2022]
4. With an example, explain conductometric titration. (02 Marks) [September 2022]
5. Define conductance. (02 Marks) [June 2022]
6. Conductivity cell. (02 Marks) [October 2021]
7. Application of conductometric titration. (02 Marks) [October 2021]
8. Theory and curves of conductometric titrations. (05 Marks) [February 2021]
9. Molar conductivity. (02 Marks) [February 2020]
10. Give an account of conductometric titrations. (05 Marks) [June 2019]
11. Discuss the different types of conductometric titration curves. (05 Marks) [August 2019]

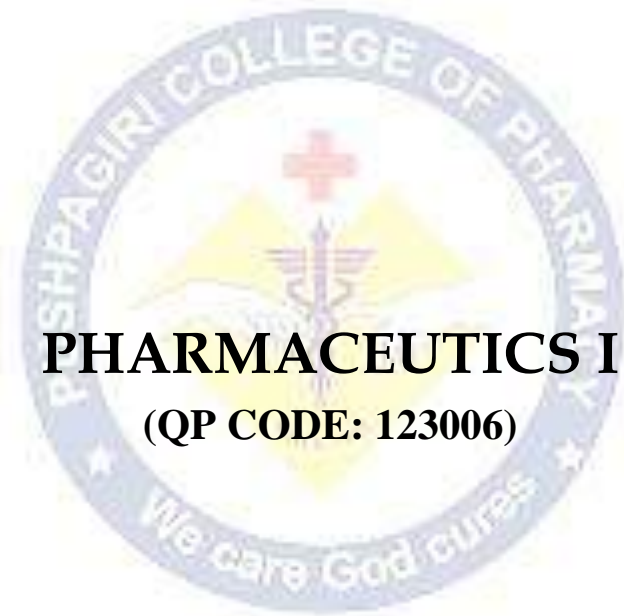
Potentiometry

1. Write principle involved in working of hydrogen ion responsive indicator electrode. How are end points determined in potentiometric titrations. (10 marks) [June 2023]

2. What are indicator electrodes. Give examples. (02 Marks) [March 2023]
3. Explain the construction and working of standard hydrogen electrode. Add a note on its advantages and disadvantages. (02 Marks) [March 2023]
4. Write any two reference electrodes used in potentiometric analysis. (02 Marks) [September 2022]
5. Write principle involved in working of glass electrode. Describe typical methods to determine end points in potentiometric titrations. (10 marks) [June 2022]
6. Electrochemical cell. (02 Marks) [October 2021]
7. Reference electrodes. (02 Marks) [February 2021]
8. Applications of potentiometric titrations. (05 Marks) [October 2021]
9. Explain indicator electrodes. (05 Marks) [October 2021]
10. End point detection and measurement of potential in potentiometric titration. (05 Marks) [February 2021]
11. What is the principle of potentiometric titration. With a neat labelled diagram explain any two reference electrodes. (10 marks) [February 2020]
12. What is an electrochemical cell. (02 Marks) [June 2019]
13. Define conductance. (02 Marks) [June 2019]
14. What is specific conductance. (02 Marks) [August 2019]
15. What are indicator electrodes. Explain the construction and working of any one indicator electrode. (05 Marks) [June 2019]
16. Describe the construction and working of a calomel electrode. (05 Marks) [August 2019]
17. Describe the construction and working of a standard hydrogen electrode. (05 Marks) [February 2019]

Polarography

1. What is Ilkovic equation. Explain the differences between migration current and diffusion current. (05 Marks) [June 2023]
2. Explain the principle involved in polarography. Give the Ilkovic equation. (05 Marks) [March 2023]
3. Explain Ilkovic equation and explain the terms involved in it. (02 Marks) [June 2022, February 2020]
4. Write working principle of dropping mercury electrode. (05 Marks) [September 2022]
5. Briefly describe current voltage curve of polarographic method. (05 Marks) [February 2021]
6. Write on principle, electrodes and the applications of polarography. (10 marks) [October 2021]
7. Polarographic maxima. (02 Marks) [February 2021]
8. Maxima suppressors. (02 Marks) [February 2021, August 2019]
9. Dropping mercury electrode. (02 Marks) [February 2020]
10. Residual current. (02 Marks) [February 2020]
11. Why is a supporting electrolyte used in polarography. (02 Marks) [August 2019, February 2019]



PHARMACEUTICS I
(QP CODE: 123006)

UNIT- I**History of pharmacy/dosage forms/prescription/posology**

1. Parts of prescription.(05 Marks) **(June 2023)**
2. Any two equations for calculating paediatric doses. (02 Marks) **(June 2023)**
3. Translate the Latin terms in to English. (02 Marks) **(June 2023)**
 - mitte • infricandus • charta • collunarium
4. Factors affecting posology. (05 Marks) **(March 2023)**
5. Pharmacopoeia. (05 Marks) **(March 2023)**
6. Translate the Latin terms in to English. (02 Marks) **(March 2023)**
 - od • qid • prn • sos
7. Describe the history of profession of pharmacy in India in connection with pharmacy education, industry and organization. (10 Marks) **(Sept 2022)**
8. Adult dose of an antibiotic is 500mg. How do you calculate the dose for 10 years' child. (Any two methods). (05 Marks) **(Sept 2022)**
9. Parts of prescription. (02 Marks) **(Sept 2022)**
10. Translate the Latin terms in to English. (02 Marks) **(Sept 2022)**
 - Hora somni • Omni mane • Stat • Coch mag
11. Classify dosage forms with examples. (05 Marks) **(June 2022)**
12. Expand the abbreviations and give the English meaning of the following Latin terms. (02 Marks) **(June 2022)**
 - Pulv • Fiet. mist. mitte
13. Explain idiosyncrasy. Give examples.(02 Marks) **(June 2022)**
14. Indian pharmacopoeia. (05 Marks) **(Oct 2021)**
15. Errors in prescription. (05 Marks) **(Oct 2021)**
16. Scope of pharmacy. (02 Marks) **(Oct 2021)**
17. Define posology. Write the methods of calculation for children and infant doses. Specify the factors affecting dose selection. (10 Marks) **(Feb 2021)**
18. State the Latin terms for the following. (05 Marks) **(Feb 2021)**
 - Food • Twice a day • Apply

Mention the English meaning for the following

 - Pulvis • Recepte • Solve
19. Pharmacopoeia.(02 Marks) **(Feb 2021)**
20. Define superscription. (02 Marks) **(Feb 2021)**
21. Define prescription. Discuss the various parts and handling of prescriptions. (10 Marks) **(Feb 2020)**
22. Outline the historical background and development of Pharmacy. (05Marks) **(Feb 2020)**
23. Explain pediatric dose calculation based on age, body weight and body surface area. (05 Marks)**(Aug 2019)**

24. Define synergism with example. (02 Marks) (Aug 2019)
25. What is antagonist effect. Give examples.(02 Marks)(Aug 2019)
26. What is Pharmacopoeia. Add note on salient features of BP and USP. (05 Marks) (June 2019)

UNIT – II

Pharmaceutical calculations/ powders/introduction to liquid dosage forms

1. Show the calculation to prepare 10 powders each contains 0.1mg hyoscine HBr. Minimum weight of each powder is 100mg. (05 Marks) (June 2023)
2. Show the calculation to prepare and send 100 ml of Potassium permanganate solution so that when one tea spoonful is diluted 1000ml makes 1 in 5000 solution. (05 Marks) (June 2023)
3. Methods for enhancement of solubility. (05 Marks) (June 2023)
4. Proof spirit. (02 Marks) (June 2023)
5. Effervescent granules. (02 Marks) (June 2023)
6. Cosolvency. (02 Marks) (June 2023)
7. Discuss the merits and demerits of the liquid dosage forms. Write the excipients used for the formulation of liquid dosage forms and explain the solubility enhancing techniques. (10 Marks) (March 2023)
8. Find the concentration of sodium chloride required to render a 1% solution of cocaine hydrochloride iso osmotic with blood plasma. Freezing point of 1%w/v solution of cocaine hydrochloride is -0.09°C and that of 1%w/v of solution of sodium chloride is -0.0576°C . (05 Marks) (March 2023)
9. Show the calculation to prepare 500ml of 35%v/v alcohol from 50%v/v and 25% v/v alcoholic solutions. (05 Marks) (March 2023)
10. Eutectic mixture. (02 Marks) (March 2023)
11. Effervescent powders. (02 Marks) (March 2023)
12. Difference between Avoirdupois system and Apothecary's system. (02 Marks) (March 2023)
13. Convert the domestic measures into Metric measure. (02 Marks) (March 2023)
 - One table spoonful • one tumblerful • one dessert spoonful • one drop
14. Isotonicity and its determination methods. (05 Marks) (Sept 2022)
15. Classification of powders with suitable examples. (05 Marks) (Sept 2022)
16. Geometric dilution. (02 Marks) (Sept 2022)
17. Give a detailed account on the excipients used in the formulation of liquid dosage forms. (10 Marks) (June 2022)
18. Advantages and disadvantages of powders. (05 Marks) (June 2022)
19. Define hygroscopic powder and give examples. (02 Marks) (June 2022)
20. Hygroscopic, efflorescent and deliquescent powders. (05 Marks) (Oct 2021)
21. Dusting powder. (02 Marks) (Oct 2021)
22. Isotonic solutions. (02 Marks) (Oct 2021)

23. Classify powders with example. (05 Marks) **(Feb 2021)**
24. Name the adjuvants used in the formulation of oral liquid dosage forms. (05 Marks) **(Feb 2021)**
25. What are efflorescent powders. (02 Marks) **(Feb 2021)**
26. Explain cosolvent. Give an example. (02 Marks)**(Feb 2021)**
27. How much amount of water should be mixed with 6000 ml of 40% (v/v) alcohol to make 20% (v/v) alcohol. (05 Marks) **(Feb 2020)**
28. Give a detailed account of powders. (10 Marks) **(Aug 2019)**
29. Solubility enhancement techniques. (05 Marks) **(Aug 2019)**
30. What are the common advantages and disadvantages of powder as a solid dosage form. (05 Marks)**(Feb 2019)**
31. What are divided powders. (02 Marks) **(Feb 2019)**

UNIT – III

Liquid dosage forms

1. Classification of monophasic liquids with suitable examples. (05 Marks) **(June 2023)**
2. Stability problems of suspensions and its correction. (05 Marks) **(June 2023)**
3. Write the mechanism involved to prepare the Aqueous Iodine solution. (02 Marks) **(June 2023)**
4. Differentiate between lotion and liniment. (02 Marks) **(June 2023)**
5. Stoke's law Equation. (02 Marks) **(June 2023)**
6. Enema and its applications. (05 Marks) **(March 2023)**
7. Stability problems in emulsion. (05 Marks) **(March 2023)**
8. Differentiate between lotions and liniments. (02 Marks) **(March 2023)**
9. Use of sodium citrate in calamine lotion.(02 Marks) **(March 2023)**
10. Primary emulsion ratio for emulsion containing fixed oil and volatile oil. (02 Marks)**(March 2023)**
11. Define emulsion and write the classification of emulsifying agents with suitable examples. Discuss the methods of preparation, stability problems of emulsions and its rectification. (10 Marks) **(Sept 2022)**
12. Throat paints. (05 Marks) **(Sept 2022)**
13. Phase volume ratio. (02 Marks) **(Sept 2022)**
14. Difference between lotions and liniments.(02 Marks) **(Sept 2022)**
15. HLB Value. (02 Marks) **(Sept 2022)**
16. Types of suspensions. (02 Marks) **(Sept 2022)**
17. Discuss the stability problems in emulsion. Describe the methods to overcome the stability problems.(10 Marks) **(June 2022)**
18. Differentiate between flocculated and deflocculated suspensions. (05 Marks)**(June 2022)**
19. Define lotion. (02 Marks) **(June 2022)**
20. Differentiate between mouthwash and gargle.(02 Marks) **(June 2022)**

21. Define suspension. Explain the different methods of formulation, stability and evaluation of suspension. (10 Marks) **(Oct 2021)**
22. Define and classify monophasic liquid dosage forms. (05 Marks) **(Oct 2021)**
23. Differentiate lotions and liniments. (05 Marks) **(Oct 2021)**
24. Nasal drops. (02 Marks) **(Oct 2021)**
25. Suspending agent.(02 Marks) **(Oct 2021)**
26. Enema. (02 Marks) **(Oct 2021)**
27. List out the identification tests for emulsion. (02 Marks) **(Oct 2021)**
28. How are mouthwashes different from gargles. (05 Marks) **(Feb 2021)**
29. Outline the physical stability of suspension. (05 Marks)**(Feb 2021)**
30. Classify emulsifying agents. (02 Marks) **(Feb 2021)**
31. Define suspension, and write examples of suspending agents. (02 Marks) **(Feb 2021)**
32. Define syrup. (02 Marks) **(Feb 2021)**
33. Describe the preparation and identification methods of emulsion. Summarize the factors influencing the stability of emulsion. (10 Marks) **(Feb 2020)**
34. Suspending agents. (05 Marks)**(Feb 2020)**
35. Classify powders with examples. (02 Marks)**(Feb 2020)**
36. What is Liniment. (02 Marks)**(Feb 2020)**
37. Give the advantages and disadvantages of suspension. (05 Marks) **(Aug 2019)**
38. Define emulsion and give examples. (02 Marks) **(Aug 2019)**
39. What general labelling instruction is needed on emulsion. (02 Marks)**(June 2019)**

UNIT- IV

Incompatibilities/Suppositories

1. Define and classify the pharmaceutical incompatibilities. Explain different physical incompatibilities with suitable examples and their rectification. (10 Marks) **(June 2023)**
2. Define suppositories. What are its merits and demerits. Discuss the methods preparation, packing and evaluation of suppositories. (10 Marks)**(June 2023)**
3. Displacement value. (02 Marks) **(June 2023)**
4. Properties of ideal suppositories. (05 Marks) **(March 2023)**
5. Physical incompatibility. (02 Marks) **(March 2023)**
6. Evaluation of suppositories. (05 Marks) **(Sept 2022)**
7. Therapeutic incompatibility with suitable examples. (05 Marks) **(Sept 2022)**
8. Advantages and disadvantages of suppositories. (05 Mark) **(June 2022)**
9. Explain chemical incompatibility with examples. (05 Marks) **(June 2022)**
10. Define suppositories. (02 Marks) **(June 2022)**

11. Therapeutic incompatibility.(02 Marks) **(June 2022)**
12. Define incompatibility. Explain the chemical and physical incompatibility with examples. (10 Marks) **(Oct 2021)**
13. Explain the advantages and disadvantages of suppositories. (05 Marks) **(Oct 2021)**
14. Types of suppositories.(02 Marks) **(Oct 2021)**
15. Classify suppository bases, and briefly describe the characteristics of an ideal base. Write in detail the methods for the preparation of suppository.(10 Marks) **(Feb 2021)**
16. Outline the displacement value and its importance. (05 Marks) **(Feb 2021)**
17. How do you lubricate a suppository mould. (02 Marks) **(Feb 2021)**
18. Brief the methods for the preparation of suppositories. (05 Marks) **(Feb 2020)**
19. Explain evaluation of suppositories. (05 Marks) **(Aug 2019)**
20. Justify: Theobroma oil is an ideal suppository base. (02 Marks) **(June 2019)**
21. Elaborate the method of preparation and evaluation of suppositories. Add a note on suppository bases. (10 Marks) **(Feb 2019)**

UNIT – V

Semi solid dosage forms

1. Evaluation of semi-solid dosage forms. (05 Marks) **(June 2023)**
2. Difference between ointments and pastes. (02 Marks) **(June 2023)**
3. Define and classify the semisolid dosage forms. Explain the mechanisms and factors influencing dermal penetration of drugs. Add a note on the evaluation of ointments. (10 Marks) **(March 2023)**
4. Difference between ointments and pastes. (02 Marks) **(March 2023)**
5. Factors influencing dermal penetration of drugs. (05 Marks) **(Sept 2022)**
6. Preparation of creams. (02 Marks) **(Sept 2022)**
7. Excipients used in semi-solid dosage forms. (05 Marks) **(June 2022)**
8. Preparation of aqueous cream with one example. (05 Marks) **(June 2022)**
9. Define ointment and give examples. (02 Marks) **(June 2022)**
10. Define paste and give examples. (02 Marks) **(June 2022)**
11. Outline the factors affecting the dermal penetration of drug. (05 Marks) **(Oct 2021)**
12. Paste. (02 Marks) **(Oct 2021)**
13. Explain the types and ideal properties of ointment bases.(05 Marks) **(Feb 2021)**
14. Explain cream. (02 Marks) **(Feb 2021)**
15. Briefly write the preparation of gels. (05 Marks) **(Feb 2020)**
16. Define gels, and mention different gelling agents. (02 Marks) **(Feb 2020)**
17. Classify semisolid dosage forms. Explain the mechanism and the factors influencing dermal penetration of drugs. (10 Marks) **(Aug 2019)**

18. Compare and contrast ointment and cream. (05 Marks) (**Aug 2019**)
19. Define gels and explain the preparation of gels. (05 Marks) (**Aug 2019**)
20. Describe about creams and gel as topical formulations with suitable examples. (10 Marks) (**June 2019**)



PHARMACEUTICAL INORGANIC CHEMISTRY

(QP CODE: 124006)



UNIT I**Impurities in pharmaceutical substances**

1. Explain the principle involved in the limit tests of Lead and Iron - (10 Marks) [June 2023]
2. Outline the history of Indian pharmacopoeia – (05 Marks) [June 2023, March 2023, June 2022]
3. Explain the significance of limit test – (02 Mark) [June 2023]
4. Define Pharmacopoeia and monograph – (02 Mark) [June 2023]
5. How will you carry out pretreatment procedure for the limit test for chloride in KMnO_4 – (02 Mark) [June 2023]
6. Discuss in detail the sources and types of impurities in pharmaceutical substances with suitable examples – (10 Marks) [March 2023]
7. Why citric acid is added in the limit test of iron – (02 Marks) [March 2023]
8. List the reagents used in limit test of arsenic – (02 Marks) [March 2023]
9. Discuss in detail the apparatus and principle involved in the limit test of arsenic – (10 Marks) [Sep 2022, Oct 2021]
10. Give the principle, and reaction involved in limit test of Iron – (05 Marks) [Sept 2022, June 2022]
11. Give the principle involved in the limit test of chloride – (02 Marks) [Sept 2022]
12. Explain the principle with chemical reactions involved in the Limit test of arsenic – (05 Marks) [June 2022]
13. Why dilute nitric acid is added in the limit test of chloride – (02 Marks) [Oct 2021]
14. What are the limit tests. Give an example for inorganic impurity – (02 Marks) [Oct 2021]
15. Explain the principle and procedures involved in the limit test for heavy metals – (10 Marks) [Feb 2021]
16. What are the reagents used in the limit test for iron – (02 Marks) [Feb 2021]
17. Describe the principle and procedure involved in the limit test for arsenic with neat labeled diagram of Gutzeit's apparatus. – (10 Marks) [Feb 2020]
18. Give the principle of limit test for heavy metals- (05 Marks) [Feb 2020]
19. Explain the sources of impurities in pharmaceutical preparations. – (05 Marks) [Feb 2020]
20. What are the reagents used in the limit for iron. – (02 Marks) [Feb 2020]
21. Explain the role of nitric acid in the limit test for chloride. – (02 Marks) [Feb 2020]
22. Define limit test. Explain the principle, procedure and apparatus involved the limit test of arsenic and chloride with neat diagram. (10 marks) [Aug 2019]
23. Explain the sources of impurities in pharmacopoeial substances with suitable examples. Explain the principle and reaction involved in the assay of copper sulphate.(10 marks)[June 2019]
24. Explain the principle of limit test for lead with reactions. (05 marks) [June 2019]
25. Explain the principle with chemical reaction and procedure involved in the limit test for iron. Add note on importance of limit test. (10 marks) [Feb 2019]
26. Give any two sources of impurity in a pharmaceutical substance. (02 marks) [Feb 2019]
27. What is the use of citric acid in the limit test for iron. (02 marks) [Feb 2019]

UNIT II

- **Acids, bases and Buffers**

1. State the Henderson-Hasselbalch equation for determining pH of a solution – (02 Mark) [**June 2023**]
2. Define isotonic solution – (02 Marks) [**March 2023, Sep 2022**]
3. Define pH. Mention the pH range for differentiating acid and base – (02 Marks) [**March 2023**]
4. Define a base with suitable examples – (02 Marks) [**March 2023**]
5. Explain the methods of adjusting tonicity – (05 Marks) [**Sep 2022**]
6. Give two examples of buffer and its application – (02 Marks) [**June 2022**]
7. Outline the applications of buffers in pharmaceutical systems – (05 Marks) [**Oct 2022**]
8. Explain the different types of buffer. Discuss the importance of buffer in pharmaceutical system – (05 Marks) [**Feb 2021**]
9. What is hypertonic saline and mention its uses – 02 Marks [**Feb 2021**]
10. Define tonicity and explain the methods for adjusting tonicity (05 marks) [**Aug. 2019**]
11. Define buffer and buffer capacity. Derive the Henderson-Hasselbalch equation to calculate the pH of the buffer.
Give the applications of buffers in pharmaceutical system. (10 marks) [**Feb. 2019**]
12. Define the term normality. (02 marks) [**Feb. 2019**]

- **Major extra and intracellular electrolytes**

1. Explain in detail the principle involved in the assay of calcium gluconate with reactions. (05 Marks) [**June 2023, Feb 2021**]
2. Discuss the electrolytes used in replacement therapy. (05 Mark) [**June 2023, Oct 2021**]
3. Explain about physiological acid base balance and oral rehydration salt. (10 Marks) [**March 2023**]
4. Summarize the physiological role of sodium and potassium. (05 Marks) [**March 2023**]
5. Write the chemical equation involved and the indicator used in the assay of calcium gluconate. (02 Marks) [**March 2023**]
6. Explain the role of electrolyte in acid base balance. Give the preparation, assay and uses of sodium chloride.(10 Marks) [**Sep 2022**]
7. Give the functions of major physiological ions used as electrolytes in the replacement therapy.
 - Give the composition and uses of oral rehydration salt. (10 Marks) [**June 2022**]
8. Explain the molecular formula of calcium gluconate and boric acid. (02 Marks) [**Oct 2021**]
9. The chemical reactions involved in the assay of calcium gluconate. (02 Marks) [**Feb 2020**]
10. Describe the various electrolytes used in replacement therapy. (05 Marks) [**Feb 2020**]
11. Any four official preparations of sodium with uses. (02 Marks) [**Feb 2020**]
12. The composition and uses of ORS.(02 Marks) [**Feb 2020**]
13. Explain the physiological functions of any four major ions in the body and how physiological acid base balance is maintained. (10 marks) [**Aug. 2019**]
14. Mention any two uses of potassium ions. (02 marks) [**Aug. 2019**]
15. Explain major extracellular ions. (05 marks) [**June 2019**]

16. Discuss electrolytes used in replacement therapy. (05 marks) [**June 2019**]
17. The physiological role of sodium. (02 marks) [**June 2019**]
18. Give an account on oral rehydration therapy. (05 marks) [**Feb. 2019**]

- **Dental Products**

1. Define dentifrices with examples. (02 Mark) [**June 2023**]
2. Briefly explain about desensitizing agents and zinc eugenol cement. (05 Marks) [**March 2023**]
3. Role of fluorides in treatment of dental caries. (05 Marks) [**Sep 2022, Oct 2021, Feb 2021**]
4. Give the formula and use of • calcium carbonate • zinc eugenol cement. (02 Marks) [**Sep 2022**]
5. Write about the role of fluorides in the treatment of dental caries. (02 Marks) [**June 2022**]
6. What is desensitizer. Give an example. (02 Marks) [**Feb 2021**]
7. Describe the role of fluoride in the treatment of dental caries. (05 Marks) [**Feb 2020**]
8. Properties and uses of calcium carbonate and sodium fluoride (05 marks) [**Aug. 2019**]
9. What is zinc eugenol cement. Mention its use. (02 marks) [**Aug. 2019**]
10. Define dentrifice. Give example (02 marks) [**Aug. 2019**]
11. Molecular formula and medicinal use of calcium carbonate. (02 marks) [**June 2019**]
12. Define dentifrices with examples. (02 marks) [**June 2019**]
13. Define anti-caries agents. Give one example. (02 marks) [**Feb. 2019**]

UNIT III

Gastrointestinal Agents

- **Acidifiers**

1. Define acidifier. Give two examples. (02 Marks) [**March 2023, Sep 2022**]
2. Define acidifiers. Explain the preparation, properties and assay of ammonium chloride. (05 Marks) [**Feb 2021**]
3. Explain assay of sodium bicarbonate. (05 marks) [**Aug. 2019**]
4. The molecular formula and medicinal use of ammonium chloride. (02 marks) [**June 2019**]

- **Antacid**

1. Classify antacids and discuss the qualities of an ideal antacid. (05 Mark) [**June 2023**]
2. Write the molecular formula of sodium bicarbonate and antimony potassium tartarate. (02 Marks) [**March 2023**]
3. What are the antacids. Give the preparations, properties and uses of sodium bicarbonate. (05 Marks) [**Sep 2022**]
4. Advantages of combinations of antacids. (02 Marks) [**Sep 2022**]
5. Classify antacids and write a note on ideal properties of antacids and combination of antacids. • Give the preparation assay and uses of sodium bicarbonate. (10 Marks) [**June 2022, Feb 2021**]
6. Properties and use of aluminium hydroxide gel. (02 Marks) [**June 2022**]
7. Discuss the method of preparation, assay properties and uses of sodium bicarbonate. (10 Marks) [**Oct 2021**]
8. Describe the method of preparation and uses of milk of magnesia. (05 Marks) [**Oct 2021**]
9. List the ideal properties of antacids. Explain the preparation, assay and medicinal uses of sodium bicarbonate. (10 Marks) [**Feb 2020**]

10. What are saline cathartics. Give the properties and uses of magnesium sulphate. (05 marks) [Feb. 2019]
11. Mention one method of preparation and the principle of assay of sodium bicarbonate. (05 marks) [Feb. 2019]
12. What are ideal antacids. (02 marks) [Feb. 2019]
13. What are the properties and uses of aluminium hydroxide gel. (02 marks) [Feb. 2019]

• **Cathartics**

1. What are cathartics. Explain the chemical properties of any one of them. (05 Mark) [June 2023]
2. Define cathartic. Give two examples. (02 Marks) [March 2023]
3. Preparation and use of sodium orthophosphate. (02 Marks) [Sep 2022]
4. Give the properties and use of the following. • kaolin • sodium ortho phosphate. (05 Marks) [Sept 2022]
5. Explain the chemical formula and uses of magnesium sulphate and sodium thiosulphate. (02 Marks) [Oct 2021]
6. What are saline cathartics. Give the preparation and uses of magnesium sulphate. (05 Marks) [Feb 2021]
7. The properties and uses of magnesium sulphate. (02 marks) [Aug. 2019]
8. Mode of action of saline cathartics. (02 marks) [Aug. 2019]

• **Anti Microbial**

1. Summarize the preparation, properties and uses of potassium permanganate. (05 Mark) [June 2023, Sep 2022, June 2022]
2. Describe the method of preparation, properties and assay of chlorinated lime. (05 Marks) [March 2023, June 2022]
3. Outline the principle and procedure involved in the assay of hydrogen peroxide. (05 Marks) [March 2023]
4. Iodine and its preparations. (05 Marks) [Oct 2021]
5. Define antimicrobials. Give the molecular formula of chlorinated lime. (02 Marks) [Oct 2021]
6. Describe the mechanism of action of antimicrobials and give the properties and medicinal use of potassium permanganate. (05 Marks) [Feb 2021]
7. What is Lugol's solution and mention its uses. (02 Marks) [Feb 2021]
8. Mention the uses of boric acid. (02 Marks) [Feb 2021]
9. The method of preparation and assay of chlorinated lime. (05 Marks) [Feb 2020]
10. What are anti-microbials. Write about their importance. (02 Marks) [Feb 2020]
11. Preparation and method of assay of chlorinated lime. (05 marks) [Aug. 2019]
12. Preparation, assay and uses hydrogen peroxide. (05 marks) [Aug. 2019]
13. What is iodine tincture and mention its uses (02 marks) [Aug. 2019]
14. Define antimicrobials. Give the principle of assay of chlorinated lime. (05 marks) [June 2019]
15. Give the molecular formula for boric acid and calcium gluconate. (02 marks) [June 2019]
16. Assay of hydrogen peroxide. (02 marks) [June 2019]
17. Give the medicinal uses of iodine and copper sulphate. (02 marks) [June 2019]
18. The preparation, properties and assay of hydrogen peroxide. (05 marks) [Feb. 2019]

UNIT-IV
Miscellaneous Compounds

• **Expectorants**

1. What are expectorants. Give the preparation, properties, assay and use of ammonium chloride. (05 Marks) [Sep 2022, Oct 2021]
2. Write the chemical equation involved and the indicator used in assay of ammonium chloride. (02 Marks) [June 2022]
3. Name two examples of expectorant. (02 Marks) [Oct 2021]
4. Define expectorant. Give the uses of potassium iodide. (02 Marks) [Feb 2021]
5. What are expectorants. (02 Marks) [Feb 2020]
6. What is an expectorant. Give examples. (02 marks) [June 2019]
7. What are expectorants. Mention the preparation and assay of ammonium chloride.(05 marks) [Feb.2019]

• **Emetics**

1. Mention the uses of copper sulphate and sodium nitrite. (02 Marks) [Oct 2021]
2. What is Rochelle salt and mention its use. (02 marks) [Aug. 2019]
3. Emetics. (05 marks) [June 2019]

• **Haematinics**

1. Illustrate with reactions the assay of ferrous sulphate. (05 Mark) [June 2023]
2. State two examples for haematinic. (02 Mark) [June 2023]
3. Mention the molecular formula for the following inorganic substances. • Ferrous sulphate • Magnesium sulphate • Sodium bicarbonate • Calcium carbonate. (02 Mark) [June 2023]
4. Define haematinics and give one example. (02 Marks) [June 2022]
5. What are haematinics. Give the method of preparation and assay of anyone Hematinic. (05 Marks) [Feb 2020]
6. Explain the preparation, properties and assay of ferrous sulphate. (05 marks) [Aug 2019]
7. Define haematinics with examples. (02 marks) [Feb 2019]
8. The chemical reactions involved in the assay of ferrous sulphate. (02 marks) [Feb 2019]

• **Poison and Antidote**

1. Describe the method of preparation, properties and assay of sodium thiosulphate. (10 Marks) [June 2023]
2. Mention the uses of activated charcoal and zinc sulphate. (02 Mark) [June 2023, June 2022]
3. Define antidote with examples. (02 Mark) [June 2023, Sep 2022]
4. Write the molecular formula of sodium nitrite and potash alum. (02 Mark) [June 2023]
5. Classify antidotes and explain the assay of sodium thiosulphate with reactions. (05 Marks) [March 2023, Feb 2021]
6. Define alum and give the formula properties and use of potash alum. (05 Marks) [Sep 2022]
7. Preparation of sodium thiosulphate. (02 Marks) [Feb 2021]
8. Mechanism of action and uses of activated charcoal. (02 Marks) [Feb 2021]
9. Define antidotes with examples. (02 Marks) [Feb 2020]
10. Define antidotes. Give properties and uses of sodium nitrite. (05 marks) [Aug 2019]
11. Preparation of sodium thiosulphate. (02 marks) [Aug 2019]

12. What is an anti-dote. Describe the method of preparation, assay and properties of sodium thiosulphate. (10 marks)
[June 2019]

8. Give the details about activated charcoal. (05 marks) [Feb. 2019]

• **Astringents**

1. Write a note on alum. (02 Marks) [Sep 2022]

2. What are astringents. Write the chemical formula of any two. (02 Marks) [Oct 2021, Feb 2021]

3. Give the medicinal uses of kaolin and zinc sulphate. (02 Marks) [Feb 2020]

4. Define astringent with two examples. (02 Marks) [Feb 2020]

5. Define astringent. Give example. (02 marks) [Aug. 2019]

6. Name one inorganic compound each used as: • Antacid • Hematinic • Emetic • Antidote • Astringent. (05 marks)
[June 2019]

7. Define astringent. Give example (02 marks) [June 2019]

8. Define astringent. Give one example. (02 marks) [Feb. 2019]

UNIT-V

Radiopharmaceuticals

1. Explain the properties of Alpha, Beta and Gamma Rays. (05 Marks) [March 2023]

2. State any two precautions to be followed while handling radioactive materials. (02 Marks) [March 2023]

3. What are the properties of α , β and γ rays. (05 Marks) [Sep 2022]

4. Give preparation and properties of sodium iodide I^{131} . (05 Marks) [Sep 2022]

5. Pharmaceutical application of radioactive substance. (02 Marks) [Sep 2022]

6. Define radioisotope. (02 Marks) [June 2022]

7. Properties and uses of sodium iodide – I^{131} . (02 Marks) [June 2022]

8. Give the storage conditions of radio isotopes. (02 Marks) [June 2022]

9. Discuss the diagnostic and pharmaceutical applications of radio isotopes – 05 Marks [Oct 2021]

10. Define radioactivity and half-life – 02 Marks [Oct 2021]

11. How sodium iodide I^{131} is stored – 02 Marks [Oct 2021]

12. Explain the methods employed for the measurement of radioactivity – 05 Marks [Feb 2021]

13. Define radioactivity. Mention different types of radiations – 02 Marks [Feb 2021]

14. What are radio isotopes. Mention their pharmaceutical applications. -05 Marks [Feb 2020]

15. Storage conditions of radio pharmaceuticals (02 marks) [Aug. 2019]

16. How will you measure the radioactivity. (05 marks) [June 2019]

17. The properties of α -radiations. (02 marks) [June 2019]

18. Define radiopharmaceuticals. Describe about the diagnostic and therapeutic applications of radioisotopes. (05 marks) [Feb. 2019]

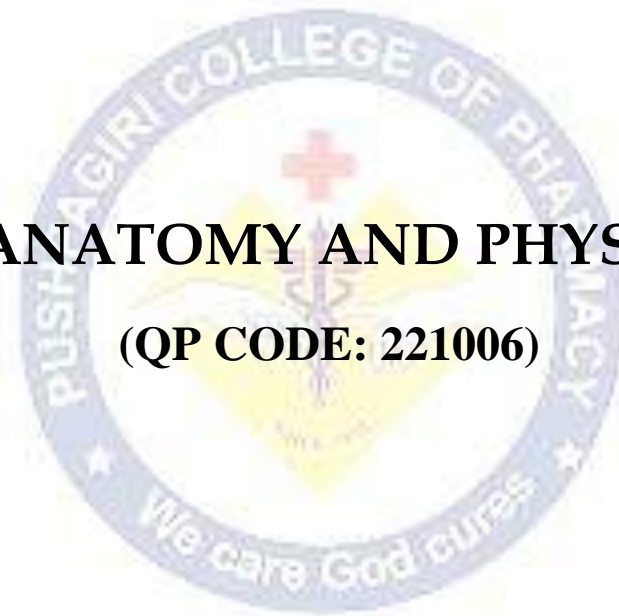
19. Storage conditions of radioactive substance. (02 marks) [Feb. 2019]

SECOND SEMESTER B.PHARM



HUMAN ANATOMY AND PHYSIOLOGY-II

(QP CODE: 221006)



UNIT –I
Nervous System

1. Meninges.[05 Marks] (**August 2023**)
2. Explain the various parts of a neuron. [05 Marks] (**August 2023**)
3. Hyperpolarization. [02 Marks] (**August 2023**)
4. Microglia.[02 Marks] (**August 2023**)
5. With a neat labeled diagram explain the section of the brain and add a note on functions of cerebral cortex. [10 Marks] (**Feb 2023**)
6. Composition of Cerebro -Spinal Fluid (CSF). [02 Marks] (**Feb 2023**)
7. Synapse. [02 Marks] (**Feb 2023**)
8. Define Neurotransmitters, [02 Marks] (**Feb 2023**)
9. Neuron. [02 Marks] (**Feb 2023**)
10. Neuroglia.[05 Marks] (**Sept 2022**)
11. Explain the events that characterize transmission of nerve impulse.[05 Marks] (**Sept 2022**)
12. Synapses.[02 Marks] (**Sept 2022**)
13. Depolarization.[02 Marks] (**Sept 2022**)
14. Threshold potential.[02 Marks] (**Sept 2022**)
15. Cerebellum.[05 Marks] (**June 2022**)
16. Ventricles of brain. [02 Marks] (**June 2022**)
17. Explain the structure and functions of human brain. [10 Marks] (**Jan 2022**)
18. Resting potential. [02 Marks] (**Jan 2022**)
19. Astrocytes. [02 Marks] (**Jan 2022**)
20. Gross Structure and functions of Spinal cord. [05 Marks] (**May 2021**)
21. Meninges of brain. [02 Marks] (**May 2021**)
22. Describe the structure and functions of neurons. Explain about electrophysiology of nerves. [10 Marks] (**Jan 2020**)
23. Structure and functions of cerebrum. [05 Marks] (**Jan 2020**)
24. The properties of nerve fibers. [02 Marks] (**Jan 2020**)
25. Define neurotransmitters and hormones with examples. [02 Marks] (**Jan 2020**)
26. Define synapse. Describe about the generation and transmission of action potential. [10 Marks] (**Aug 2019**)
27. Structure of spinal cord. [05 Marks] (**Aug 2019**)
28. Composition of cerebrospinal fluid. [02 Marks] (**Aug 2019**)
29. Explain the parts and functions of cerebrum. [10 Marks] (**June 2019**)
30. Components and functions of reflex arc. [05 Marks] (**June 2019**)
31. Types and functions of neuroglia. [02 Marks] (**June 2019**)

32. Functions of meninges. [02 Marks] (**June 2019**)
33. Define and classify the neurons. [05 Marks] (**Jan 2019**)
34. Brain stem. [05 Marks] (**Jan 2019**)
35. Define neurotransmitters with examples. [02 Marks] (**Jan 2019**)

UNIT- II

Digestive system & Energetics

1. Explain the various neurohormonal mechanisms involved in the regulation of stomach acid secretion. [10 Marks] (**August 2023**)
2. GI disorders. [05 Marks] (**August 2023**)
3. Functions of large intestine. [02 Marks] (**August 2023**)
4. Functions of salivary glands. [02 Marks] (**August 2023**)
5. Briefly explain the digestion and absorption of nutrients in GIT. [10 Marks] (**Feb 2023**)
6. BMR. [05 Marks] (**Feb 2023**)
7. Name the salivary glands. [02 Marks] (**Feb 2023**)
8. Pancreas. [02 Marks] (**Feb 2023**)
9. Explain the various parts of digestive system and mention their digestive functions. [10 Marks] (**Sept 2022**)
10. Digestive functions of liver. [05 Marks] (**Sept 2022**)
11. Explain how ATP is formed and mention its importance. [05 Marks] (**Sept 2022**)
12. Explain the structure and functions of small intestine. [05 Marks] (**Sept 2022**)
13. Peristalsis. [02 Marks] (**Sept 2022**)
14. Define digestion. Describe in detail the process of digestion. [10 Marks] (**June 2022**)
15. Role of ATP. [05 Marks] (**June 2022**)
16. Anatomy and functions of liver. [05 Marks] (**June 2022**)
17. Structure of villi. [02 Marks] (**June 2022**)
18. Salivary glands. [02 Marks] (**Jan 2022**)
19. Anterior and Posterior view of Liver. [05 Marks] (**May 2021**)
20. Creatinine phosphate. [05 Marks] (**May 2021**)
21. Movements of GIT. [02 Marks] (**May 2021**)
22. Functions of Gall bladder. [02 Marks] (**May 2021**)
23. Role of villi in absorption. [02 Marks] (**May 2021**)
24. Role of ATP [02 Marks] (**May 2021**)
25. Explain the movements, digestion process and absorption of nutrients in GIT.[10 Marks] (**Jan 2020**)
26. Anatomy and functions of salivary glands. [05 Marks] (**Jan 2020**)
27. Dyspepsia and achlorhydria. [02 Marks] (**Jan 2020**)
28. BMR. [02 Marks] (**Jan 2020**)

29. Draw a neat labelled diagram of stomach. [02 Marks] (**Jan 2020**)
30. Anatomy and movements of small intestine. [05 Marks] (**Aug 2019**)
31. Digestion of lipids. [02 Marks] (**Aug 2019**)
32. Formation of creatinine phosphate. [02 Marks] (**Aug 2019**)
33. Structural layers of alimentary canal. [02 Marks] (**Aug 2019**)
34. Anatomy of pharynx. [02 Marks] (**Aug 2019**)
35. Basal Metabolic Rate. [02 Marks] (**Aug 2019**)
36. Anatomy and physiology of stomach. [05 Marks] (**June 2019**)
37. Types of salivary glands. [02 Marks] (**June 2019**)
38. Role of ATP. [02 Marks] (**June 2019**)
39. Anatomy and physiology of stomach. [05 Marks] (**Jan 2019**)
40. Define peptic ulcer and diabetes mellitus. [02 Marks] (**Jan 2019**)
41. The role of ATP and creatinine phosphate. [02 Marks] (**Jan 2019**)

UNIT- III

Respiratory system & Urinary system

1. Explain the anatomy of respiratory system and write a note on regulation of Respiration. [10 Marks] (**August 2023**)
2. Explain the functions of kidney. [05 Marks] (**August 2023**)
3. Vital capacity. [02 Marks] (**August 2023**)
4. Anatomy of lungs. [05 Marks] (**Feb 2023**)
5. Lung volumes and capacity. [05 Marks] (**Feb 2023**)
6. Role of Renin angiotensin system in kidney. [05 Marks] (**Feb 2023**)
7. Explain the mechanism of breathing. [05 Marks] (**Sept 2022**)
8. Residual volume. [02 Marks] (**Sept 2022**)
9. Total lung capacity. [02 Marks] (**Sept 2022**)
10. Oxygen transport. [02 Marks] (**Sept 2022**)
11. Explain the physiology of urine formation. [10 Marks] (**June 2022**)
12. Cellular respiration. [05 Marks] (**June 2022**)
13. Tidal Volume. [02 Marks] (**June 2022**)
14. Constituents of urine. [02 Marks] (**June 2022**)
15. Anatomy of bronchial tract. [02 Marks] (**June 2022**)
16. Urinary bladder. [02 Marks] (**June 2022**)
17. Explain the anatomy of urinary tract and mention the disorders of kidney. [10 Marks] (**Jan 2022**)
18. Physiology of urine formation. [05 Marks] (**Jan 2022**)
19. Artificial respiration. [05 Marks] (**Jan 2022**)

20. Anatomy of lungs. [05 Marks] (**Jan 2022**)
21. Tidal volume. [02 Marks] (**Jan 2022**)
22. Anatomy of larynx. [02 Marks] (**Jan 2022**)
23. Creatinine. [02 Marks] (**Jan 2022**)
24. Explain the physiology of urine formation. Add a note on structure of nephron. [10 Marks] (**May 2021**)
25. Methods of Resuscitation. [05 Marks] (**May 2021**)
26. Role of Kidney in acid base balance. [05 Marks] (**May 2021**)
27. Define Tidal volume. [02 Marks] (**May 2021**)
28. Bronchial asthma. [02 Marks] (**May 2021**)
29. Mechanism of respiration. [05 Marks] (**Jan 2020**)
30. Physiology of urine formation. [05 Marks] (**Jan 2020**)
31. Nephritis. [02 Marks] (**Jan 2020**)
32. Lung volume and capacities. [02 Marks] (**Jan 2020**)
33. Explain what is Renin-Angiotensin-Aldosterone System (RAS). Explain its role in kidney. Add a note on disorders of kidney. [10 Marks] (**Aug 2019**)
34. Exchange of gases. [05 Marks] (**Aug 2019**)
35. Proximal convoluted tubule –role in urine formation. [05 Marks] (**Aug 2019**)
36. Tidal volume and vital capacity. [02 Marks] (**Aug 2019**)
37. Ureters. [02 Marks] (**Aug 2019**)
38. Describe the anatomy of lungs and explain the mechanism of respiration. [10 Marks] (**June 2019**)
39. Anatomy of nephron with a neat labelled diagram. [05 Marks] (**June 2019**)
40. Tidal volume. [02 Marks] (**June 2019**)
41. Anatomy of larynx. [02 Marks] (**June 2019**)
42. Explain the anatomy and functions of kidney and nephron with a neat labeled diagram. [10 Marks] (**Jan 2019**)
43. Role of kidney in acid-base balance. [05 Marks] (**Jan 2019**)
44. Artificial respiration. [05 Marks] (**Jan 2019**)
45. Anatomy of lungs. [05 Marks] (**Jan 2019**)
46. The functions of salivary glands. [05 Marks] (**Jan 2019**)
47. Define and mention the symptoms of renal failure. [02 Marks] (**Jan 2019**)

UNIT- IV

Endocrine System

1. Mention the hormones of thyroid gland and write their functions. [05 Marks] (**August 2023**)
2. Functions of thymus. [02 Marks] (**August 2023**)
3. Structure and functions of adrenal gland. [05 Marks] (**Feb 2023**)
4. Functions of Thyroxine. [02 Marks] (**Feb 2023**)
5. Pituitary hormones. [05 Marks] (**Sept 2022**)

6. Hormones of pancreas. [02 Marks] (**Sept 2022**)
7. Pituitary hormones and their functions. [05 Marks] (**June 2022**)
8. Regulation of heat loss. [02 Marks] (**June 2022**)
9. Glucagon. [02 Marks] (**June 2022**)
10. Mention the pancreatic hormones and write their functions. [05 Marks] (**Jan 2022**)
11. Adrenal gland and its hormones. [05 Marks] (**Jan 2022**)
12. Functions of parathyroid gland. [02 Marks] (**Jan 2022**)
13. Functions of Posterior pituitary hormones. [05 Marks] (**May 2021**)
14. Types of diabetes mellitus. [02 Marks] (**May 2021**)
15. Parathormone. [02 Marks] (**May 2021**)
16. Pituitary gland hormones. [05 Marks] (**Jan 2020**)
17. The functions of thyroid hormones. [02 Marks] (**Jan 2020**)
18. Synthesis of thyroid hormones. [05 Marks] (**Aug 2019**)
19. . Functions of insulin. [05 Marks] (**June 2019**)
20. Hormones released by adrenal gland and their functions. [05 Marks] (**June 2019**)
21. Calcitonin. [02 Marks] (**June 2019**)
22. 17. Negative feedback mechanism. [02 Marks] (**June 2019**)
23. Describe the synthesis, storage, release and functions of thyroid hormones. [10 Marks] (**Jan 2019**)
24. Explain about thyrotoxicosis. [02 Marks] (**Jan 2019**)
25. Pancreatic hormones. [02 Marks] (**Jan 2019**)

UNIT- V

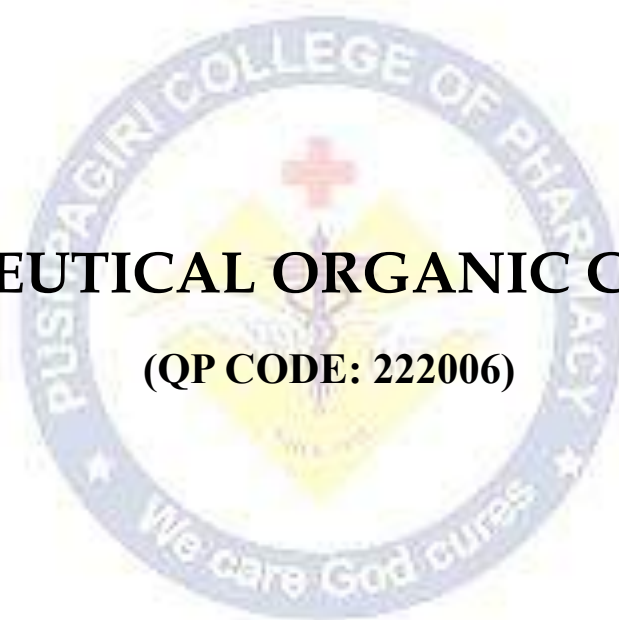
Reproductive system & Introduction to genetics

1. Spermatogenesis. [05 Marks] (**August 2023**)
2. Explain the physiological functions of estrogen. [05 Marks] (**August 2023**)
3. Parturition. [02 Marks] (**August 2023**)
4. Fertilization. [02 Marks] (**August 2023**)
5. Genetic inheritance. [02 Marks] (**August 2023**)
6. Testosterone. [02 Marks] (**August 2023**)
7. Physiology of Menstruation. [05 Marks] (**Feb 2023**)
8. Structure and functions of mRNA. [05 Marks] (**Feb 2023**)
9. Mention the walls of the uterus. [02 Marks] (**Feb 2023**)
10. List out the sex hormones. [02 Marks] (**Feb 2023**)
11. Down Syndrome or Down's Syndrome. [02 Marks] (**Feb 2023**)
12. Physiology of menstruation. [10 Marks] (**Sept 2022**)
13. Chromosomes. [02 Marks] (**Sept 2022**)
14. Oogenesis. [02 Marks] (**Sept 2022**)

15. Oogenesis. [02 Marks] (**June 2022**)
16. Protein translation. [02 Marks] (**June 2022**)
17. Estrogen. [02 Marks] (**June 2022**)
18. Sex linked inheritance. [02 Marks] (**June 2022**)
19. Structure and function of testis. [05 Marks] (**Jan 2022**)
20. Protein synthesis. [05 Marks] (**Jan 2022**)
21. Progesterone. [05 Marks] (**Jan 2022**)
22. DNA structure. [05 Marks] (**Jan 2022**)
23. Oxytocin. [02 Marks] (**Jan 2022**)
24. Briefly explain the structure and functions of female reproductive system. [10 Marks] (**May 2021**)
25. Ovulation. [05 Marks] (**May 2021**)\
26. Gene mutation. [02 Marks] (**May 2021**)
27. Fertilization. [05 Marks] (**Jan 2020**)
28. Protein synthesis. [05 Marks] (**Jan 2020**)
29. Define and write the function of genes. [02 Marks] (**Jan 2020**)
30. The functions of female reproductive system. [02 Marks] (**Jan 2020**)
31. Spermatogenesis. [05 Marks] (**Aug 2019**)
32. Transcription of DNA. [05 Marks] (**Aug 2019**)
33. Follicle stimulating hormone. [02 Marks] (**Aug 2019**)
34. Multiple alleles. [02 Marks] (**Aug 2019**)
35. Structure and function of ovaries .[05 Marks] (**June 2019**)
36. DNA and genetic code. [05 Marks] (**June 2019**)
37. Functions of prostate gland. [02 Marks] (**June 2019**)
38. mRNA. [02 Marks] (**June 2019**)
39. Oogenesis. [05 Marks] (**Jan 2019**)
40. Sex hormones. [02 Marks] (**Jan 2019**)
41. DNA. [02 Marks] (**Jan 2019**)
42. Chromosomes. [02 Marks] (**Jan 2019**)

PHARMACEUTICAL ORGANIC CHEMISTRY I

(QP CODE: 222006)



UNIT - I**Classification, Nomenclature and Isomerism**

1. What is structural isomerism. Define with examples of any four types. (05 Marks) [**August 2023**]
2. State any four rules of naming aromatic compounds. (02 Marks) [**August 2023**]
3. Write the structure of 1,4-pentadiene and Hex-5-ene-3-ol. (02 Marks) [**August 2023**]
4. Explain structural isomerism along with its examples. (05 Marks) [**Feb 2023**]
5. Construct the structure for 1-bromopentene and 3-chlorobutane. (02 Marks) [**Feb 2023**]
6. Write the IUPAC rules for naming cycloalkanes. (05 Marks) [**Sep 2022**]
7. Write the IUPAC rules for naming alkyl halides. (05 Marks) [**Sep 2022**]
8. Mention the IUPAC name of $\text{CH}_2=\text{CH}-\text{CH}_2-\text{CH}_2-\text{CH}=\text{CH}_2$. (02 Marks) [**June 2022**]
9. Explain positional isomerism with an example. (02 Marks) [**June 2022, Jan 2020**]
10. Structural formula for 2,3-dimethylbutane. (02 Marks) [**June 2022**]
11. Explain the structural isomerism. Draw the structural isomers for $\text{C}_4\text{H}_8\text{O}_2$ containing the group. (05 Marks)

Jan 2022]



12. Classify organic compounds. Give the IUPAC nomenclature rules for alkanes and cycloalkenes. (10 Marks) [**May 2021**]
13. Construct the structure for 1, 2-dichlorocyclopentane and 1, 3-butadiene. (02 Marks) [**May 2021**]
14. Write the rule IUPAC naming of organic compounds. (05 Marks) [**Jan 2020**]
15. Give two examples for functional group isomerism. (02 Marks) [**Jan 2020**]
16. Mention the IUPAC name of $\text{CH}_2=\text{CH}-\text{CO}-\text{CH}_3$. (02 Marks) [**Aug 2019**]
17. Structural formula for 2-methylbutane. (02 Marks) [**Aug 2019**]
18. Explain functional isomerism with an example. (02 Marks) [**Aug 2019**]
19. Explain the positional and functional isomerism with examples. (05 Marks) [**June 2019**]
20. Construct the structure of the following: 1-bromo-2, 4-dimethylpentan-3-one, 2-(1- aminoethyl) pentan-1-ol. (02 Marks) [**June 2019**]
21. Classify organic compounds with examples. (05 Marks) [**Jan 2019**]
22. Structural formula for 3-Ethylhexane. (02 Marks) [**Jan 2019**]
23. Explain chain isomerism with an example. (02 Marks) [**Jan 2019**]
24. Mention the IUPAC name of $\text{CH}_2=\text{CH}-\text{CH}_2-\text{I}$. (02 Marks) [**Jan 2019**]

UNIT - II**Alkanes, alkenes and conjugated dienes**

1. Explain the mechanism of electrophilic addition reactions of alkenes. (10 Marks) [**August 2023**]
2. Discuss E1 mechanism of dehydrohalogenation in alkenes. (05 Marks) [**August 2023, Jan 2019**]
3. Rearrangement of carbocation. (05 Marks) [**August 2023, June 2019**]
4. Allylic rearrangement . (05 Marks) [**August 2023**]

5. Compare E1 and E2 reactions. (02 Marks) [**August 2023**]
6. Explain anti Markownikoff's orientation. Give examples. (02 Marks) [**August 2023**]
7. Briefly explain free radical addition reactions of conjugated dienes. (02 Marks) [**August 2023**]
8. Explain Markownikoff's orientations with suitable examples. (10 Marks) [**Feb 2023**]
9. Explain the stability of conjugated dienes. (05 Marks) [**Feb 2023**]
10. Define Saytzeff's rule. (02 Marks) [**Feb 2023, Jan 2020, June 2019**]
11. Define SP³ hybridization . (02 Marks) [**Feb 2023**]
12. Write about E1 Vs E2 reaction. (02 Marks) [**Feb 2023, May 2021**]
13. Explain the mechanism of halogenations of alkanes. (05 Marks) [**Feb 2023, June 2019**]
14. Explain the kinetics, mechanism, orientation and reactivity of E1 reaction. (10 Marks) [**Sep 2022**]
15. Describe the stability of conjugated dienes. (05 Marks) [**Sep 2022**]
16. Why alkenes are more reactive than alkanes. Explain. (05 Marks) [**Sept 2022**]
17. Define peroxide effect. (02 Marks) [**Sept 2022**]
18. Why methane is insoluble in water. (02 Marks) [**Sept 2022**]
19. What are carbocation. (02 Marks) [**Sept 2022**]
20. Ozonolysis. (02 Marks) [**Sept 2022**]
21. Diel's Alder reaction. (02 Marks) [**Sept 2022, May 2021, Jan 2020**]
22. Explain Anti-Markownikoff's orientation. (05 Marks) [**June 2022**]
23. Explain the electrophilic addition reactions of alkenes. (05 Marks) [**June 2022**]
24. Discuss SP³ hybridization in alkanes. (05 Marks) [**June 2022**]
25. Explain the factors affecting E1 and E2 reactions. (05 Marks) [**June 2022**]
26. Explain any four methods of preparation of alkenes. Add a note on E1 reactions. (10 Marks) [**Jan 2022**]
27. Explain the mechanism of electrophilic addition reactions of alkenes with any two examples. (05 Marks) [**Jan 2022**]
28. Describe the mechanism of Diel-Alder reaction. (05 Marks) [**Jan 2022, Jan 2019**]
29. Describe ozonolysis with suitable examples. (05 Marks) [**May 2021**]
30. Explain the stability of alkenes. (05 Marks) [**May 2021, Jan 2020**]
31. Define SP² hybridization. (02 Marks) [**May 2021, June 2019**]
32. Explain the mechanism of halogenation of alkanes with a suitable example. (10 Marks) [**Jan 2020, Aug 2019**]
33. Give the mechanism of free radical addition of conjugated dienes. (05 Marks) [**Jan 2020**]
34. State Markownikoff's rule. (02 Marks) [**Jan 2020, Jan 2019**]
35. What are the factors effecting E1 and E2 reactions. (02 Marks) [**Jan 2020**]
36. Explain Markownikoff's orientation. (05 Marks) [**Aug 2019**]
37. Explain any three evidences for E2 mechanism. (05 Marks) [**Aug 2019**]
38. Give two general methods of preparation of alkenes with equations. (02 Marks) [**Aug 2019**]
39. What is hybridization. (02 Marks) [**Aug 2019**]
40. Discuss SP² hybridization in alkenes. (05 Marks) [**Jan 2019**]

UNIT III**Alkyl halides & Alcohols**• **Alkyl halides**

1. Discuss SN₂ reaction mechanism of substitution in alkyl halides. (10 Marks) [**August 2023, May 2021**]
2. Factors effecting SN₁ an SN₂ reactions.(05 Marks) [**August 2023**]
3. Explain the structure and use of Iodoform. (02 Marks) [**August 2023**]
4. Write the mechanism, kinetics, stereochemistry and reactivity of SN₁ reaction. (10 Marks) [**Feb 2023**]
5. Write the structure and uses of dichloromethane, iodoform, ethylchloride, chloroform and tetrachloroethylene. (05 Marks) [**Feb 2023, Jan 2019**]
6. Compare SN₁ reaction and SN₂ reaction. Explain the reactivity of reactants in SN₁ reaction and rearrangement of carbocations. (10 Marks) [**June 2022**]
7. Give the structure of acetic acid and propylene glycol. (02 Marks) [**June 2022**]
8. What are the uses of cetosteryl alcohol and iodoform. (02 Marks) [**June 2022**]
9. What are carbocations. Explain the stability of carbocations with suitable examples. (05 Marks) [**Jan 2022**]
10. Write the structure and uses of trichloroethylene, tetrachloromethane, chlorobutanol, propylene glycol and hexamine. (05 Marks) [**May 2021**]
11. What is the order of stability of carbocations. (02 Marks) [**May 2021**]
12. What are the nucleophilic substitution reaction? Describe some typical nucleophilic substitution reaction of alkyl halides. (10 Marks) [**Jan 2020**]
13. Explain the mechanism of dehydrohalogenation of alkyl halides. (05 Marks [**Jan 2020**]
14. Write the structure and uses of Tetrachloroethylene and Chlorbutanol. (02 Marks) [**Jan 2020**]
15. Explain the kinetics and stereochemistry of SN₂ reaction. Discuss about the solvent effects in SN₂ reaction. (10 Marks) [**Aug 2019**]
16. Explain the factors affecting SN₁ reaction. (05 Marks) [**Aug 2019**]
17. Discuss the order of reactivity of alkyl halides in E₁, E₂, SN₁ and SN₂ reactions. (05 Marks) [**Aug 2019**]
18. Discuss the mechanism, kinetics, stereochemistry and relative reactivity of alkyl halides in bimolecular nucleophilic aliphatic substitution reaction. (10 Marks) [**June 2019**]
19. Oxidation of aldehyde and secondary alcohol. (02 Marks) [**June 2019**]
20. Explain the kinetics and stereochemistry of SN₁ reaction. Mention the order of reactivity of alkyl halides in SN₁ reaction. (10 Marks) [**Jan 2019**]
21. Give any three general methods of preparation of alkyl halides with equations. (02 Marks) [**Jan 2019**]

• **Alcohols**

1. Write qualitative tests for alcohols. (02 Marks) [**August 2023, June 2019**]
2. Write any three methods of preparation of alcohols. (05 Marks) [**Feb 2023, June 2022**]
3. Write any two qualitative tests for ethyl alcohol. (02 Marks) [**May 2021**]
4. Explain the tests to distinguish the three types 1^o, 2^o and 3^o of alcohol. (05 Marks) [**Jan 2020**]
5. Write the structure and uses of glycerol. (02 Marks) [**Jan 2020**]
6. The uses of glycerol and chloroform. (02 Marks) [**Aug 2019**]

- Outline any four methods of preparation of alcohols. Discuss in detail various reactions of aliphatic alcohols. (10 Marks) [**June 2019**]
- Give the structure and uses of acetyl salicylic acid and chlorobutanol. (05 Marks) [**Jan 2019**]

UNIT-IV

Carbonyl Compounds (Aldehydes and ketones)

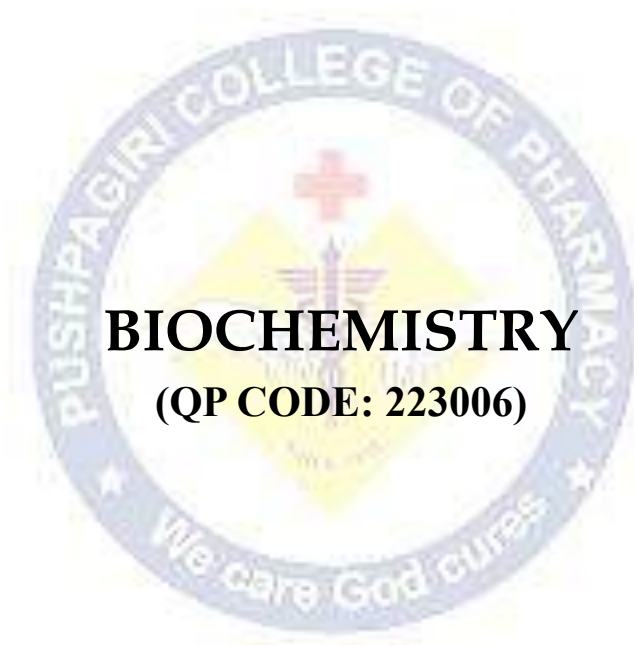
- Explain the reaction involved in Perkin condensation. (02 Marks) [**August 2023**]
- Write any two methods of preparation and reactions of carboxylic acids. (05 Marks) [**Feb 2023**]
- Crossed aldol condensation. (05 Marks) [**Feb 2023**]
- Write the general qualitative tests of aldehydes with reaction. (05 Marks) [**Feb 2023, Jan 2019**]
- What is electromeric effect. (02 Marks) [**Feb 2023**]
- Perkin condensation reaction. (02 Marks) [**Feb 2023**]
- Describe the reaction and mechanism in • Cannizzaro reaction • benzoin condensation. (10 Marks) [**Sept 2022, June 2022**]
- Write the structure and uses of chloral hydrate, cinnamaldehyde, dimethyl phthalate, cetostearyl alcohol and vanillin. (05 Marks) [**Sept 2022, Jan 2019**]
- Explain about nucleophilic addition reactions of carbonyl compounds. (05 Marks) [**Sept 2022**]
- Explain any two preparations of ketones. (02 Marks) [**Sept 2022**]
- Crossed Aldol condensation. (02 Marks) [**Sept 2022**]
- Give the structures of amphetamine and benzaldehyde. (02 Marks) [**June 2022**]
- Why formaldehyde doesn't undergo aldol condensation. (02 Marks) [**June 2022**]
- Outline any four methods for the preparation of aldehydes. (05 Marks) [**Jan 2022**]
- Aldol condensation. (05 Marks) [**May 2021**]
- Write the uses of vanillin and paraldehyde. (02 Marks) [**May 2021**]
- Benzoin condensation. (02 Marks) [**May 2021, June 2019**]
- Give an example of Cannizzaro's reaction. (02 Marks) [**Jan 2020**]
- Explain crossed aldol condensation and crossed Cannizzaro reaction with mechanism. (10 Marks) [**Aug 2019**]
- Discuss any five nucleophilic addition reactions of ketones. (05 Marks) [**June 2019**]
- Summarize aldol condensation and Perkin condensation. (05 Marks) [**June 2019, Jan 2019**]
- Mention any qualitative test for distinguishing aldehydes and ketones. (02 Marks) [**June 2019**]
- Why acetaldehyde does not undergo Cannizzaro reaction. (02 Marks) [**Jan 2019**]

UNIT-V

• Carboxylic Acids

- Write the general qualitative tests for carboxylic acids. (05 Marks) [**August 2023**]
- Give the structure and uses of Acetyl salicylic acid. (02 Marks) [**August 2023, Jan 2019**]
- Write the uses of acetic acid and oxalic acid. (05 Marks) [**Feb 2023**]
- Draw the structure of acetyl salicylic acid and amphetamine. (02 Marks) [**Feb 2023**]
- Write any two qualitative tests for amides. (02 Marks) [**Feb 2023**]
- Effect of substituents on the acidity of carboxylic acids. (02 Marks) [**Sept 2022**]

7. Explain any two qualitative tests for oxalic acid and benzoic acid. (02 Marks) [Sep 2022]
 8. Explain inductive effect with a suitable example. (05 Marks) [June 2022, May 2021]
 9. Give the structure and uses of lactic acid and glycerol. (05 Marks) [June 2022]
 10. Mention any one qualitative test for amide and carboxylic acid. (02 Marks) [Jan 2022]
 11. Acidity of carboxylic acids. Give the structure and uses of succinic acid. (05 Marks)[May 2021, Jan 2019]
 12. Write the general qualitative tests for amines and esters with reaction. (05 Marks) [May 2021]
 13. Draw the structure of salicylic acid and lactic acid. (02 Marks) [May 2021]
 14. Inductive effect of carboxylic acids. Give examples. (05 Marks) [Jan 2020]
 15. Write the structure and uses of methyl salicylate. (02 Marks) [Jan 2020, Jan 2019]
 16. Give the structure and uses of salicylic acid and benzyl benzoate. (05 Marks) [Aug 2019]
 17. Give the structures of oxalic acid and ethanol. (02 Marks) [Aug 2019]
 18. Give two qualitative tests for carboxylic acids. (02 Marks) [Aug 2019]
 19. Explain the effect of substitution on acidity of carboxylic acids. (05 Marks) [June 2019]
 20. Inductive effect. (02 Marks) [June 2019, Jan 2019]
 21. List out the derivatives of carboxylic acid. (02 Marks) [June 2019]
 22. What are the uses of tartaric acid and citric acid. (02 Marks) [Jan 2019]
- **Aliphatic Amines**
 1. Explain the effect of substituents on the basicity of aliphatic amines. (05 Marks) [August 2023, Jan 2020]
 2. Explain the structure and uses of Amphetamine. (02 Marks) [August 2023]
 3. Draw the structure of acetyl salicylic acid and amphetamine. (02 Marks) [Feb 2023]
 4. Write any two preparation of amines. Write the structure and uses of ethylenediamine. (10 Marks) [Sep 2022]
 5. Classify amines with examples. (02 Marks) [Sep 2022]
 6. Give two qualitative tests for amines. (02 Marks) [June 2022]
 7. Summarize the qualitative analysis of primary secondary and tertiary amines. (05 Marks) [Jan 2022]
 8. Complete the reaction: $\text{CH}_3\text{CH}_2\text{NH}_2 + \text{CHCl}_3 + 3\text{KOH} \longrightarrow$ (02 Marks) [Jan 2022]
 9. Trimethylamine is a stronger base than ammonia. Explain. (05 Marks) [May 2021]
 10. Write the general qualitative tests for amines and esters with reaction. (05 Marks) [May 2021]
 11. Discuss the basicity of amines. (05 Marks) [Aug 2019]
 12. Write structure and uses of: ethylenediamine, amphetamine, acetyl salicylic acid, glycerol. (05 Marks) [June 2019, Jan 2019]
 13. Outline any four methods for the preparation of amines. (05 Marks) [June 2019]



BIOCHEMISTRY
(QP CODE: 223006)

UNIT 1**Enzymes**

1. Define enzyme and discuss the various types of enzyme inhibition with suitable examples. (10 Marks) **[Feb 2023]**
2. Michaelis plot. (05 Marks) **[Feb 2023]**
3. Allosteric enzymes regulation. (05 Marks) **[Aug 2023]**
4. Enzyme induction. (02 Marks) **[Aug 2023]**
5. Diagnostic applications of enzymes.(05 Marks) **[Jan 2022]**
6. Enzyme induction. (02 Marks) **[Jan 2022]**
7. Explain IUB classification of enzyme. (05 Marks) **[June 2022]**
8. Biochemical functions of coenzymes. (02 Marks) **[June 2022]**
9. Michaelis plot. (05 Marks) **[Sep 2022]**
10. Classification of enzymes. (02 Marks) **[Sep 2022]**
11. Give examples for enzyme inhibitors. (02 Marks) **[Sep 2022]**
12. Competitive enzyme inhibition. (05 Marks) **[May 2021]**
13. Coenzymes. (02 Marks) **[May 2021]**
14. Co-enzymes. (02 Marks) **[Jan 2020]**
15. Isoenzymes. (05 Marks) **[Jan 2019]**
16. Enzyme induction. (02 Marks) **[Jan 2019]**
17. Nomenclature of enzymes. (02 Marks) **[Jan 2019]**
18. Diagnostic applications of enzymes.(05 Marks) **[June 2019]**
19. Enzyme inhibitors. (05 Marks) **[Aug 2019]**
20. Enzyme repression. (02 Marks) **[Aug 2019]**
21. Properties of enzymes. (02 Marks)**[Aug 2019]**

UNIT 11

- **Biomolecules**

1. What are essential amino acids? Give two examples. (02 Marks) **[Feb 2023]**
2. What is transamination. (02 Marks) **[Feb 2023]**
3. Define catabolism.(02 Marks) **[Feb 2023]**
4. What are monosaccharides. Classify them based on functional group present in it with suitable example. (02 Marks) **[Feb 2023]**.
5. Transamination reaction of amino acid metabolism.(02 Marks) **[Aug 2023]**
6. Explain briefly transamination reaction of amino acid metabolism. (05 Marks) **[Jan 2022]**
7. Decarboxylation reaction of amino acid metabolism. (02 Marks) **[June 2022]**
8. Essential amino acids. (02 Marks) **[Sep 2022]**

9. Transamination. (02 Marks) [Sep 2022]
10. Explain in detail general reactions of amino acid metabolism. (10 Marks) [May 2021]
11. Biological role of carbohydrates. (05 Marks) [May 2021]
12. Classification of aminoacids.(02 Marks) [May 2021]
13. Essential amino acids. (02 Marks) [Jan 2020]
14. Classification of proteins. Add a note on its biological role. (05 Marks) [Jan 2019]
15. Decarboxylation. (02 Marks) [Jan 2019]

- **Bioenergetics**

1. Biological significances of cyclic AMP. (05 Marks) [Feb 2023]
2. Biological significance of ATP. (02 Marks) [Aug 2023]
3. Biological significance of ATP and cyclic AMP. (05 Marks) [Jan 2022]
4. Concept of free energy. (02 Marks) [Jan 2022]
5. Free energy. (02 Marks) [June 2022]
6. Significance of ATP. (02 Marks) [June 2022]
7. Exergonic reaction. (02 Marks) [June 2022]
8. Adenosine tri phosphate. (05 Marks) [Sep 2022]
9. Redox potential. (02 Marks) [Sep 2022]
10. Biological significances of ATP. (05 Marks) [May 2021]
11. Cyclic AMP. (02 Marks) [Jan 2019]

UNIT III

- **Carbohydrate Metabolism**

1. HMP shunt and its significance. (05 Marks)[Feb 2023]
2. How insulin reduces blood glucose level. (02 Marks) [Feb 2023]
3. What is Glucose-6-phosphate dehydrogenase deficiency. (02 Marks) [Feb 2023]
4. Describe gluconeogenesis – pathway with its significance. (10 marks) [Aug 2023]
5. Significance of HMP shunt. (02 Marks) [Aug 2023]
6. Pyruvate dehydrogenase complex. (02 Marks) [Aug 2023]
7. Briefly discuss about the citric acid cycle with its energetics and significance. (10 marks) [Jan 2022]
8. Hormonal regulation of blood glucose level and diabetes mellitus. (05 Marks) [Jan 2022]
9. Significance of glycolysis. (02 Marks) [Jan 2022]
10. Glucose-6-Phosphate dehydrogenase deficiency. (02 Marks) [Jan 2022]
11. Explain HMP Shunt with its significance. (10 Marks) [June 2022]
12. Glycogen storage diseases. (02 Marks) [June 2022]
13. Hormonal regulation of blood glucose level. (02 Marks) [June 2022]
14. Enumerate gluconeogenesis with its significance. (10 Marks) [Sept 2022]
15. Glycolysis. (02 Marks) [Sept 2022]

16. Glucose – 6 – phosphate dehydrogenase deficiency. (02 Marks) [May 2021]
17. Glycolysis. (02 Marks) [May 2021]
18. Describe about HMP shunt. Add a note on about its significance. (10 Marks) [Jan 2020]
19. Glycogenesis. (05 Marks) [Jan 2020]
20. Diabetes mellitus. (02 Marks) [Jan 2020]
21. Discuss in detail about HMP shunt. (10 Marks) [Jan 2019]
22. What is G6PD deficiency. (02 Marks) [Jan 2019]
23. Briefly discuss about the glycolysis with its significance. (10 Marks) [June 2019]
24. Glycogen storage diseases. (05 Marks) [June 2019]
25. Gluconeogenesis. (02 Marks) [June 2019]
26. Describe the steps involved in the glycolytic pathway with its energetic. (10 Marks) [Aug 2019]

- **Biological Oxidation**

1. Oxidative phosphorylation. (02 Marks) [Feb 2023]
2. Oxidative phosphorylation. (05 Marks) [Aug 2023]
3. Substrate level phosphorylation. (02 Marks) [Aug 2023]
4. Mechanism of Electron Transport Chain (ETC). (05 Marks) [Jan 2022]
5. Inhibitors of electron transport chain. (02 Marks) [Jan 2022]
6. Oxidative phosphorylation. (02 Marks) [June 2022]
7. Add a note on oxidative phosphorylation and its inhibitors. (05 Marks) [Sep 2022]
8. Oxidative phosphorylation. (02 Marks) [May 2021]
9. Electron transport chain. (05 Marks) [Jan 2020]
10. Oxidative phosphorylation. (05 Marks) [Jan 2020]
11. Electron transport chain. (05 Marks) [Jan 2019]
12. Substrate level phosphorylation. (02 Marks) [Jan 2019]
13. Oxidative phosphorylation. (05 Marks) [June 2019]

UNIT 1V

- **Lipid Metabolism**

1. De novo synthesis of palmitic acid. (05 Marks) [Feb 2023]
2. Classification of lipids with example. (05 Marks) [Feb 2023]
3. Discuss in detail about the Beta oxidation of fatty acid. (10 marks) [Aug 2023]
4. Summarize the synthesis and utilization of Ketone Bodies. (05 Marks) [Aug 2023]
5. Explain briefly the biological significance of Cholesterol. (05 Marks) [Aug 2023]
6. Discuss about the de-novo synthesis of fatty acids. (10 marks) [Jan 2022]
7. Ketoacidosis. (02 Marks) [Jan 2022]

8. Explain briefly the utilization of Ketone bodies. (05 Marks) [**June 2022**]
 9. Discuss in detail about β -oxidation of saturated fatty acid. (10 Marks) [**Sept 2022**]
 10. Atherosclerosis. (05 Marks)[**Sept 2022**]
 11. Fatty liver. (02 Marks) [**Sept 2022**]
 12. Biological significance of cholesterol. (02 Marks) [**Sept 2022**]
 13. Define lipids. Explain the pathway of beta oxidation of palmitic acid and add a note on its energetics(10 Marks) [**May 2021**]
 14. Formation and utilization of Ketone bodies. (05 Marks)[**May 2021**]
 15. Conversion of cholesterol into steroid hormone. (05 Marks) [**May 2021**]
 16. Obesity. (02 Marks) [**May 2021**]
 17. Discuss about β -oxidation of fatty acids. Calculate the net ATP in this process by taking palmitic acid as an example. (10 Marks) [**Jan 2020**]
 18. Explain the conversion of cholesterol into bile acids. (05 Marks) [**Jan 2020**]
 19. Biological significance of cholesterol. (05 Marks) [**Jan 2020**]
 20. Fatty liver and obesity. (02 Marks) [**Jan 2020**]
 21. Clinical implications of hypercholesterolemia. (02 Marks) [**Jan 2020**]
 22. Atherosclerosis. (02 Marks) [**Jan 2020**]
 23. De novo synthesis of fatty acid. (05 Marks) [**Jan 2019**]
 24. Hypercholesterolemia. (05 Marks) [**Jan 2019**]
 25. Obesity. (02 Marks) [**Jan 2019**]
 26. Formation and utilization of ketone bodies. (05 Marks) [**June 2019**]
 27. Atherosclerosis. (05 Marks) [**June 2019**]
 28. Formation of ketone bodies. (05 Marks) [**Aug 2019**]
 29. Steroidal hormones. (05 Marks) [**Aug 2019**]
 30. Physiological role of vitamin D. (02 Marks) [**Aug 2019**]
- **Amino Acid Metabolism**
 1. Catabolism of tyrosine. (05 Marks) [**Feb 2023**]
 2. Synthesis of melatonin. (05 Marks) [**Feb 2023**]
 3. Write a note on hyperbilirubinemia. (02 Marks) [**Feb 2023**]
 4. What is alkaptonuria. (02 Marks) [**Feb 2023**]
 5. Gout disease. (02 Marks) [**Aug 2023**]
 6. Disorders of urea cycle. (02 Marks) [**Aug 2023**]
 7. Biological significance of noradrenaline. (02 Marks) [**Aug 2023**]
 8. Synthesis and significance of 5-HT. (05 Marks) [**Jan 2022**]
 9. Biological significances of dopamine. (02 Marks) [**Jan 2022**]

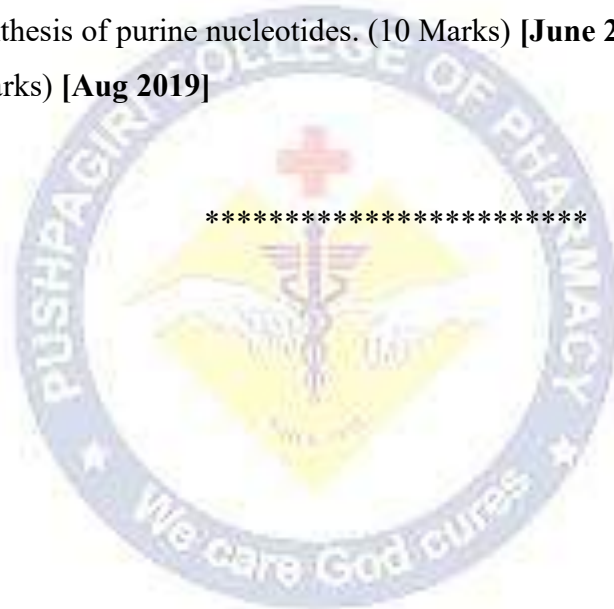
10. Hyperuricemia. (02 Marks) **[Jan 2022]**
11. Discuss about urea cycle and its disorders. (05 Marks) **[June 2022]**
12. List the various metabolic disorders of phenyl alanine. Explain Albinism. (05 Marks) **[June 2022]**
13. Synthesis and significance of melatonin. (05 Marks) **[June 2022]**
14. Summarize the process of breakdown of Heme. (05 Marks) **[June 2022]**
15. Jaundice. (02 Marks) **[June 2022]**
16. Catabolism of tyrosine and its metabolic disorders.(05 Marks) **[Sep 2022]**
17. Hyperuricemia. (02 Marks) **[Sept 2022]**
18. Catabolism of phenylalanine. (05 Marks) **[May 2021]**
19. Hyperbilirubinemia. (02 Marks) **[May 2021]**
20. Alkaptonuria. (02 Marks) **[May 2021]**
21. Hyperuricemia. (02 Marks) **[May 2021]**
22. Catabolism of tyrosine and its metabolic disorders. (05 Marks) **[Jan 2020]**
23. Gout. (02 Marks) **[Jan 2020]**
24. Significance of 5-HT. (02 Marks) **[Jan 2020]**
25. Disorders associated with urea cycle. (02 Marks) **[Jan 2020]**
26. Briefly describe about urea cycle with its disorders. (10 Marks) **[Jan 2019]**
27. Synthesis and significance of 5HT. (05 Marks) **[Jan 2019]**
28. Albinism. (02 Marks) **[Jan 2019]**
29. Hyperbilirubinemia. (02 Marks) **[Jan 2019]**
30. Write a note on protein synthesis-(05 Marks) **[June 2019]**
31. Jaundice. (05 Marks) **[June 2019]**
32. Significance of dopamine. (02 Marks) **[Aug 2019]**
33. Biological significance of noradrenaline. (02 Marks) **[Aug 2019]**

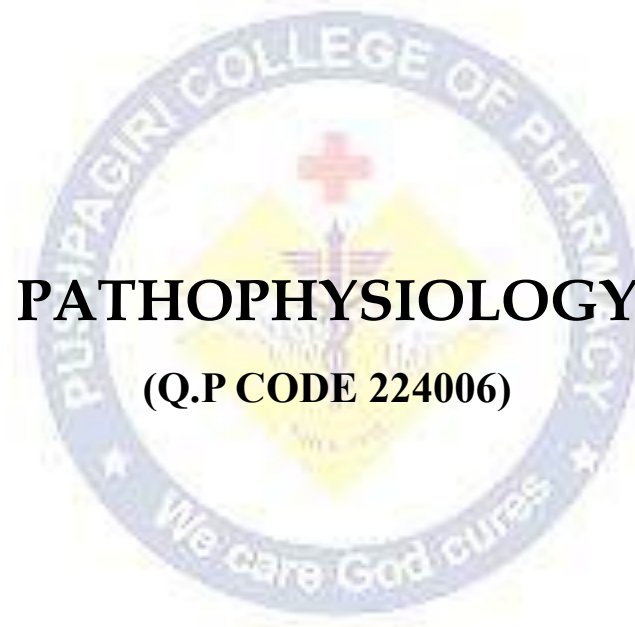
UNIT V

Nucleic Acid Metabolism and Genetic Information Transfer

1. Describe the structure of DNA and their functions. (10 marks) **[Feb 2023]**
2. RNA synthesis. (02 Marks) **[Feb 2023]**
3. Catabolism of purine nucleotides. (05 Marks) **[Aug 2023]**
4. Explain briefly the semi conservative replication of DNA. (05 Marks) **[Aug 2023]**
5. Synthesis and functions of RNA. (05 Marks) **[Aug 2023]**
6. Inhibitors of protein synthesis. (02 Marks) **[Aug 2023]**
7. Explain briefly the structure of DNA. Enumerate its functions. (05 Marks) **[Jan 2022]**
8. Genetic code. (02 Marks) **[Jan 2022]**
9. Translation. (02 Marks) **[Jan 2022]**

10. Describe the biosynthesis of purine nucleotides. (10 Marks) **[June 2022]**
11. Explain briefly the structure of RNA. Enumerate its functions. (05 Marks) **[June 2022]**
12. Inhibitors of protein synthesis. (02 Marks) **[June 2022]**
13. Genetic code. (05 Marks) **[Sept 2022]**
14. Biosynthesis of pyrimidine nucleotides. (05 Marks) **[Sept 2022]**
15. Translation. (02 Marks) **[Sept 2022]**
16. Biosynthesis of pyrimidine nucleotides. (05 Marks) **[May 2021]**
17. Name the stages of RNA synthesis. (02 Marks) **[May 2021]**
18. Pyrimidine biosynthesis. (05 Marks) **[Jan 2020]**
19. Function of RNA. (02 Marks) **[Jan 2020]**
20. Semiconservative model of DNA replication. (05 Marks) **[Jan 2019]**
21. Transcription. (02 Marks) **[Jan 2019]**
22. Discuss about the biosynthesis of purine nucleotides. (10 Marks) **[June 2019]**
23. DNA replication. (05 Marks) **[Aug 2019]**





PATHOPHYSIOLOGY
(Q.P CODE 224006)

UNIT I**Basic Principles of Cell Injury and Adaptation**

1. Discuss the pathogenesis and morphology of cell injury. [10 mark] **(August 2023)**.
2. Reversible cell injury. [05 mark] **(February 2023)**
3. Define cell injury. Describe in detail about various cellular adaptations and causes of cell injury. Add a note on the pathogenesis of hypoxic cell injury. [10 mark] **(February 2023)**
4. Metaplasia. [02 mark] **(August 2023) (January 2019)**
5. Define homeostasis. [02 mark] **(February 2023) ,(June 2022)**
6. Write short notes on: • Atrophy and its mechanism. • Hyperplasia. [10 mark] **(September 2022)**.
7. Mention the types of feedback system. [02 mark] **(June 2022)**
8. Acidosis. [02 mark] **(January 2022)**.
9. Calcification. [02 mark] **(January 2020) (January 2022)**.
10. Describe in detail about reversible and irreversible cell injury. [10 mark] **(May 2021)**
11. Discuss in detail about morphology of cell injury adaptive changes. [10 mark] **(January 2020)**
12. Define cell injury and describe the pathogenesis of cell injury. [10 mark] **(August 2019)**,
13. Define calcification and list the different types of calcification with examples. [05 mark] **(June 2019)**
14. Define calcification. Give example for dystrophic calcification. [02 mark] **(August 2019)**,
15. Hyperplasia. [02 mark] **(June 2019)**
16. Define electrolyte imbalance. [02 mark] **(January 2019) (May 2021)**
17. The various causes for cell injury with examples. [05 mark] **(July 2018)**
18. Define atrophy and hypertrophy. [02 mark] **(July 2018)**
19. Define acidosis and alkalosis. [02 mark] **(July 2018)**

Basic Mechanism Involved in the Process of Inflammation and Repair

1. Wound healing. [02 mark] **(August 2023)**.
2. Mediators of inflammation. [05 mark] **(August 2019),(February 2023) (June 2022)**
3. Basic principles of wound healing in skin.[05 mark] **(January 2022)**
4. Clinical signs and mechanism of inflammation. [05 mark] **(May 2021)**
5. Mechanism of chronic inflammation. [05 mark] **(January 2020)**
6. Define inflammation. Describe the various mediators of inflammation with their actions in the inflammatory process. [10 mark] **(January 2019)**
7. Discuss about mechanism of chronic inflammation in detail. [10 mark] **(June 2019)**
8. The vascular events of acute inflammation. [05 mark] **(January 2019)**
9. Define wound healing and explain the principles of wound healing in the skin. [05 mark] **(July 2018)**
10. Explain the pathogenesis of acute inflammation. [10 mark] **(July 2018)**

UNIT II**Cardiovascular System**

1. Unstable angina. [02 mark] **(August 2023)**.
2. Write the pathophysiology, signs, symptoms and etiology of Congestive Heart Failure. [10 mark] **(June 2022)**.
3. Hypertension. [05 mark] **(September 2022)**.
4. Atherosclerosis. [02 mark] **(June 2022), (January 2022)**.
5. Classification of Angina Pectoris. [02 mark] **(May 2021)**.
6. Risk factors for myocardial infarction. [02 mark] **(January 2020)**.
7. The pathogenesis of hypertension. [05 mark] **(May 2021), (August 2019)**.
8. Discuss in detail regarding pathophysiology of angina [10 mark] **(January 2020)**
9. The pathophysiology of arteriosclerosis. [05 mark] **(January 2020)**.
10. Pathophysiology of ischemic heart disease. [05 mark] **(June 2019), (January 2019)**.
11. Pathophysiology of atherosclerosis. [05 mark] **(June 2019)**.
12. The clinical features of myocardial infarction. [02 mark] **(January 2019)**.
13. Explain the pathophysiology of atherosclerosis. [10 mark] **(July 2018)**.

Respiratory System

1. Chronic Obstructive Pulmonary Disease (COPD). [05 mark] **(August 2023)**
2. Complications of asthma. [02 mark] **(February 2023)**
3. Asthma. [05 mark] **(August 2023)**
4. Explain in detail about pathophysiology of asthma. [10 mark] **(May 2021)**.
5. The etiology of asthma. [05 mark] **(January 2020)**.
6. The trigger factors for an asthma attack. [02 mark] **(August 2019)**.
7. The pathophysiology of bronchial asthma. [05 mark] **(July 2018)**.

Renal System

1. Differentiate between acute and chronic renal failure. [05 mark] **(February 2023), (June 2022), (June 2019)**.
2. Risk factors for chronic renal failure. [02 mark] **February 2023)**.
3. The etiopathogenesis of acute renal failure. [05 mark] **(January 2019)**
4. Any four complications of chronic renal failure. [02 mark] **(August 2019)**.
5. Etiology of acute renal failure. [02 mark] **(July 2018)**.

UNIT III**Haematological Diseases*****Short notes 5***

1. Megaloblastic anemia. [02 mark] **(August 2023), (June 2022)**,
2. Anemia. [02 mark] **(September 2022)**
3. Sickle cell anemia. [02 mark] **(January 2022)**.

4. Pathophysiology and signs and symptoms of iron deficiency anemia. [05 mark] **(May 2021)**.
5. Hereditary acquired anemia. [05 mark] **(January 2019)**.
6. The signs and symptoms of anemia. [02 mark] **(August 2019)**.
7. Mention the signs and symptoms of haemophilia. [02 mark] **(January 2019)**.

Endocrine System

1. Define and classify diabetes mellitus. Discuss the symptoms, pathophysiology and complications of diabetes mellitus. [10 mark] **(February 2023)**.
2. Hyperthyroidism. [05 mark] **(August 2023)**.
3. Write the pathogenesis, classification, complications and management of Diabetes. [10 mark] **(January 2022)**.
4. Type I diabetes mellitus. [05 mark] **(September 2022)**
5. Write in brief about disorders of sex hormones. [05 mark] **(June 2022)**.
6. Signs, symptoms and pathophysiology of hypothyroidism. [05 mark] **(January 2022)**.
7. Complications of diabetes. [05 mark] **(May 2021)**.
8. Pathophysiology of hyperthyroidism. [05 mark] **(May 2021)**.
9. Signs and symptoms of diabetes. [02 mark] **(May 2021)**.
10. Complications of diabetes mellitus. [02 mark] **(January 2020)**.
11. Complications of hyperthyroidism. [02 mark] **(January 2020)**.
12. Mention the disorders of sex hormones. [02 mark] **(January 2020)**.
13. Clinical significance of hypothyroidism. [02 mark] **(June 2019)**.

Nervous System

1. Grandmal epilepsy. [02 mark] **(August 2023)**.
2. Stroke. [02 mark] **(August 2023)**.
3. What is epilepsy. Mention any two causes epilepsy. [02 mark] **(February 2023)**.
4. The signs and symptoms of schizophrenia. [02 mark] **(February 2023)**.
5. Schizophrenia. [05 mark] **(September 2022)**
6. Classification and Pathogenesis of epilepsy. [05 mark] **(June 2022)**.
7. Etiology of Parkinsons Disease. [02 mark] **(June 2022)**.
8. Risk factors for Stroke. [02 mark] **(June 2022)**.
9. Differentiate between depression and schizophrenia. [05 mark] **(January 2022)**.
10. Describe the clinical presentation of depression. [05 mark] **(January 2020)**.
11. The pathophysiology of schizophrenia. [05 mark] **(January 2020)**.
12. Clinical presentation of epilepsy. [02 mark] **(January 2020)**.
13. The different types of epilepsy. [05 mark] **(August 2019)**.
14. The signs and symptoms of schizophrenia. [05 mark] **(August 2019)**.
15. Describe the clinical presentation of stroke. [05 mark] **(June 2019)**.

16. Any four clinical features of depression. [02 mark] **(January 2019)**.
17. The signs and symptoms of Parkinson's disease. [02 mark] **(August 2019)**.
18. Clinical presentation of Parkinson's disease. [02 mark] **(June 2019)**.
19. Define stroke and explain its pathophysiology. [05 mark] **(July 2018)**.

Gastrointestinal System

1. Explain the pathophysiology of peptic ulcer. [05 mark] **(February 2023)**.
2. Peptic ulcer. [05 mark] **(September 2022)**
3. Signs and symptoms of peptic ulcer. [02 mark] **(June 2022)**
4. Etiology and pathophysiology of peptic ulcer. [05 mark] **(May 2021)**.
5. Explain etiological factors of peptic ulcer. [05 mark] **(January 2020)**.
6. Discuss the etiological factors, signs, symptoms, pathogenesis and complications of peptic ulcer. [10 mark] **(January 2019)**.
7. The etiology of peptic ulcer disease. [05 mark] **(August 2019)**.
8. Mention the symptoms of peptic ulcer disease. [02 mark] **(July 2018)**.

UNIT IV

Inflammatory Bowel Diseases

1. Pathophysiology of hepatitis A and B. [05 mark] **(February 2023)**.
2. Mention the causes, mode of transmission of various Hepatitis. [05 mark] **(January 2022)**
3. Hepatitis. [02 mark] **(September 2022)**
4. Causes, mode of transmission of hepatitis B. [02 mark] **(May 2021)**
5. Alcoholic liver disease. [02 mark] **(January 2020)**.
6. List the etiological factors of hepatitis. [02 mark] **(June 2019)**
7. Mention the complications of alcoholic liver disease. [02 mark] **(July 2018)**.

Disease of Bones and Joints

1. Pathophysiology of rheumatoid arthritis. [05 mark] **(August 2023)**.
2. What is primary gout. [02 mark] **(February 2023)**.
3. Differentiate between rheumatoid arthritis and gouty arthritis. [05 mark] **(January 2022)**
4. Gout. [02 mark] **(January 2022), (September 2022)**
5. Define Rheumatoid Arthritis. [02 mark] **(June 2022)**
6. Osteoporosis. [02 mark] **(January 2022), (September 2022)**
7. Define and classify gout. [02 mark] **(May 2021)**
8. Causes of osteoporosis. [02 mark] **(May 2021)**
9. The risk factors for osteoporosis. [02 mark] **(August 2019), (June 2019)**.
10. Any two risk factors for gout. [02 mark] **(January 2019)**.
11. List the signs and symptoms of rheumatoid arthritis. [02 mark] **(July 2018)**.

12. Signs and symptoms of gout. [02 mark] **(July 2018)**.

Principles of Cancer

1. Enumerate the difference between Benign and Malignant tumours, explain in detail the etiology and pathogenesis of cancer. [10 mark] **(August 2023)**.
2. Explain in detail about etiology, pathogenesis and pathophysiology of cancer. [10 mark] **(June 2022)**
3. Classification of cancer. [02 mark] **(May 2021)**
4. Pathogenesis of cancer. [05 mark] **(January 2019)**.
5. Any two differences between benign and malignant cancer. [02 mark] **(August 2019)**
6. Classification of cancer. [02 mark] **(June 2019)**.
7. The etiology of cancer. [05 mark] **(July 2018)**.

UNIT V

Infectious Diseases

1. Discuss the causes, mode of spread and pathogenesis of leprosy. [05 mark] **(February 2023)**.
2. Leprosy. [02 mark] **(August 2023)**.
3. The symptoms of meningitis. [02 mark] **(February 2023)**.
4. Tuberculosis. [05 mark] **(August 2023)**, **(February 2023)**.
5. Explain in detail about pathophysiology, etiology, mode of transmission, prevention and control of tuberculosis. [10 mark] **(January 2022)**,
6. Pathophysiology of meningitis. [05 mark] **(June 2022)**
7. Pathophysiology of tuberculosis. [05 mark] **(September 2022)**
8. Write the causative organism for AIDS & Leprosy. [02 mark] **(June 2022)**
9. Mode of transmission and causative organism for typhoid. [02 mark] **(June 2022)**
10. Signs and symptoms of typhoid. [02 mark] **(September 2022)**, **(July 2018)**.
11. Causative organism and mode of transmission of Tuberculosis. [02 mark] **(June 2022)**
12. Describe the clinical signs of leprosy. [05 mark] **(January 2020)**.
13. Leprosy. [05 mark] **(January 2019)**.
14. Mention the causative organisms, signs and symptoms of tuberculosis. [05 mark] **(June 2019)**.
15. Mention the causative organism, signs and symptoms of leprosy. [02 mark] **(June 2019)**.
16. The signs and symptoms of urinary tract infections. [02 mark] **(January 2019)**.
17. The etiology of urinary tract infections. [05 mark] **(July 2018)**.

Sexually Transmitted Diseases

1. Causative organisms of syphilis and gonorrhoea. [02 mark] **(February 2023), (May 2021)**
2. Etiology of AIDS. [02 mark] **(September 2022)**
3. Signs and symptoms of AIDS. [02 mark] **(May 2021), (January 2020).**
4. Causative agent and mode of transmission of syphilis. [02 mark] **(June 2019).**
5. The pathogenesis of AIDS. [05 mark] **(August 2019)**
6. The causative organism of syphilis. [02 mark] **(July 2018).**



THIRD SEMESTER B.PHARM



PHARMACEUTICAL ORGANIC CHEMISTRY-II
(QP Code: 321006)



UNIT I**Benzene and Its Derivatives**

1. Explain sulphonation reactions of benzene with mechanism. (05 Marks) [**Aug 2023**]
2. Structure and uses of DDT. (02 Marks) [**Aug 2023**]
3. Limitations of Friedel crafts alkylation reaction.[02 Marks [**Aug 2023, Oct 2022, Oct 2021, Dec 2020**]
4. Huckel's rule. (02 Marks) [**Aug 2023, Oct 2021**]
5. Describe the Friedel Craft's reactions with its limitation. (10 Marks) [**May 2023, April 2022**]
6. Summarize on ortho and para directors. (05 Marks) [**May 2023, April 2022**]
7. List the uses of DDT, BHC, Phenol, chloramine and cresol. [05 Marks] [**May 2023, April 2022, Oct 2021, Jan 2020, Dec 2020**]
8. Write the general reaction of halogenation of benzene. (02 Marks) [**May 2023**]
9. Mention any four derivatives of Benzene. (02 Marks) [**May 2023**]
10. Explain the effect of substituents on the reactivity and orientation in benzene. (10 Marks) [**Oct 2022**]
11. Explain the mechanism involved in the nitration of benzene. (05 Marks)[**Oct 2022**]
12. Define resonance energy. (02 Marks) [**Oct 2022**]
13. Elucidate the structure of benzene on the basis of analytical, synthetic and other evidences. (10 Marks) [**April 2022**]
14. State and explain Huckel's rule. (05 Marks) [**April 2022**]
15. Explain the effect of substituents on orientation of mono substituted benzene towards electrophilic aromatic substitution. (10 Marks) [**Oct 2021**]
16. Explain halogenation reactions of benzene with mechanism. (05 Marks) [**Oct 2021**]
17. Explain the effect of substituents on reactivity of mono substituted benzene towards electrophilic aromatic substitution. (10 Marks) [**Dec 2020**]
18. Explain nitration reactions of benzene with mechanism. (05 Marks) [**Dec 2020**]
19. Explain Huckels rule. Write the theory of reactivity of activating and deactivating group present on the phenyl ring.(10 Marks) [**Jan 2020**]
20. Explain the Friedal-Crafts acylation of benzene with mechanism of reaction. (05 Marks [**Jan 2020**]
21. Explain Friedal-Crafts alkylation reaction of benzene with mechanism and write its limitations. (05 Marks) [**June 2019**]
22. Write the structure of the following compounds: DDT, Diphenyl methane, Chloramine, Anthracene, Saccharin. (05 Marks) [**June 2019**]
23. Explain Huckel's rule with examples. (05 Marks) [**June 2019**]
24. What is the nitrating mixture used for its reaction in benzene. (02 Marks) [**June 2019**]
25. Why phenols undergo bromination reaction more readily than methoxybenzene . (02 Marks) [**June 2019**]
26. Name the functional groups that deactivate aromatic ring. (02 Marks) [**June 2019**]

27. Resonance structures of benzene and resonance stabilization. (02 Marks) [**June 2019**]
28. What is resonance. Write the resonance stabilization of benzene. Explain with mechanism of reaction sulphonation and halogenation reaction of benzene.(10 Marks) [**Jan 2019**]
29. Explain the theory of reactivity of methyl group attached to the phenyl ring. (05 Marks) [**Jan 2019**]
30. Reagents used in Friedal-Crafts acylation of benzene. (02 Marks) [**Jan 2019**]
31. Why aniline undergo bromination more readily than toluene. (02 Marks) [**Jan 2019**]

UNIT II

Phenols & Aromatic Amines

• Phenols

1. Discuss the qualitative tests for phenols. (05 Marks) [**Aug 2023, Jan 2019**]
2. Give a note on the effects of substituents on acidity of phenols. (05 Marks) [**May 2023, Oct 2022, Oct 2021, Dec 2020**]
3. Discuss the qualitative tests of phenols and write the structure of naphthols. (05 Marks) [**May 2023**]
4. Write the structure and uses of resorcinol. (02 Marks) [**May 2023**]
5. Write the structure and use of (a) cresol (b) saccharin. (02 Marks) [**Oct 2022**]
6. Write any two electrophilic substitution reactions of phenols. (02 Marks) [**Oct 2022**]
7. Reimer Tiemann reaction. (02 Marks) [**Oct 2022, Oct 2021**]
8. Write any two methods of preparation and any three reactions of phenol. (05 Marks) [**April 2022**]
9. What happens when phenol is treated with (a) Conc.HNO₃ (b) Aqueous bromine. (02 Marks) [**April 2022**]
10. Give the characteristic identification tests for phenols. (05 Marks) [**Jan 2020, June 2019**]
11. Structure of water-soluble phenols. (02 Marks) [**Jan 2020, June 2019**]
12. Compare the acidity of m-cresol and m-nitrophenol. (02 Marks) [**Jan 2020**]
13. Compare the acidity of phenol with o-cresol. (02 Marks) [**June 2019**]
14. Arrange the following compounds in the increasing order of acidity with justification: phenol, picric acid, o-cresol, m-nitrophenol. (05 Marks) [**Jan 2019**]

• Aromatic Amines

1. Discuss the effect of substituents on basicity of amines. (05 Marks) [**Aug 2023**]
2. The structure and uses of chloramine. (02 Marks) [**Aug 2023**]
3. Two important synthetic uses of aryl diazonium salts. (02 Marks) [**Aug 2023, Dec 2020**]
4. What do you mean by the term basicity. (02 Marks) [**May 2023**]
5. Give any two reactions of aromatic amines. (02 Marks) [**May 2023**]
6. How are aryl diazonium salts formed. Write any three applications of aryl diazonium salts. (05 Marks)[**Oct 2022**]
7. Write any two methods of preparation and any three reactions of aromatic amines. (05 Marks) [**Oct 2022**]
8. Discuss the synthetic utility of aryl diazonium salts. (10 Marks) [**April 2022**]

9. Explain the effect of substituents on the basicity of amines. (05 Marks) [**April 2022, Dec 2020**]
10. Why aromatic amines are less basic than aliphatic amines. (02 Marks) [**April 2022**]
11. What is carbylamine reaction. (02 Marks) [**April 2022, Oct 2021, Dec 2020**]
15. Discuss the basicity of amines. (05 Marks) [**Oct 2021**]
16. Arrange the following in their increasing order of basicity with justification: Dimethylamine, Ammonia, Triethylamine, N-methylaniline. (05 Marks) [**Jan 2020**]
17. Arrange the following in their increasing order of basicity with justification: Aniline, Ammonia, Triethylamine, N-methylaniline. (05 Marks) [**June 2019**]
18. What are diazonium salts. Name the different types of reactions with any two examples of it. (05 Marks) [**June 2019**]
19. What are diazonium salts. Write any two coupling and displacement reactions. (05 Marks) [**Jan 2019**]
20. Compare the basicity of aniline and trimethylamine. (02 Marks) [**Jan 2019**]

UNIT III

Fats and Oils

1. Explain the various analytical constants of fats and oils and explain the significance and principle involved in their determination. (10 Marks) [**Aug 2023**]
2. Write the principle and significance of RM value. (05 Marks) [**Aug 2023, May 2023, Oct 2022, Dec 2020**]
3. Hydrogenation reactions of oils. (02 Marks) [**August 2023, June 2019, Jan 2019**]
4. Mention the various reactions of fatty acids. (05 Marks) [**May 2023**]
5. Give any one example for a saturated and an unsaturated fatty acids. (02 Marks) [**May 2023, Jan 2019**]
6. Give two salient features of oils. (02 Marks) [**May 2023**]
7. What is meant by Rancidity. (02 Marks) [**May 2023, Oct 2021, Jan 2020, Jan 2019**]
8. What is iodine value. Write the principle involved in the estimation of iodine value. (05 Marks) [**Oct 2022, Dec 2020**]
9. Define ester value and write its significance. Explain the principle involved in its determination. (05 Marks) [**April 2022**]
10. Write any two reactions of fatty acids. (02 Marks) [**April 2022**]
11. Define acid value and explain the method of determination and significance. (05 Marks) [**Oct 2021**]
12. Define fats and oils with examples. (02 Marks) [**Oct 2021**]
13. Define ester value and give its significance. (02 Marks) [**Oct 2021, Jan 2020**]
14. What is hydrogenation of oils. (02 Marks) [**Dec 2020, Jan 2020**]
15. Define drying, semidrying and nondrying oils with examples. (02 Marks) [**Dec 2020**]
16. Define acetyl value and give its significance. (02 Marks) [**Dec 2020**]
17. Define iodine value. What are drying oils and non-drying oils. (05 Marks) [**Jan 2020**]
18. What are oils. Give examples of saturated and unsaturated fatty acid. (05 Marks) [**Jan 2020**]

19. What are oils. Give examples for saturated and unsaturated fatty acids. Define acid value, saponification value, iodine value along with their significance. (05 Marks) [**June 2019**]
20. What is saponification value and iodine value. Give their significance. (05 Marks) [**Jan 2019**]
21. Write the examples of saturated and unsaturated fatty acid. (02 Marks) [**Jan 2019**]

UNIT IV

Polynuclear Hydrocarbons

1. Outline any two methods of synthesis of phenanthrene and discuss four important reactions of phenanthrene . (10 Marks) [**Aug 2023**]
2. Outline the Haworth synthesis of naphthalene. (05 Marks) [**Aug 2023, Oct 2022**]
3. Important chemical reactions of anthracene. (05 Marks) [**Aug 2023**]
4. Structure and medicinal uses of two naphthalene derivatives. (02 Marks) [**Aug 2023**]
5. Two uses of triphenyl methane. (02 Marks) [**Aug 2023**]
6. What are polynuclear hydrocarbons. Mention the synthesis and reactions of diphenyl methane and phenanthrene. (10 Marks) [**May 2023**]
7. Write any three reactions of naphthalene. (05 Marks) [**Oct 2022, April 2022**]
8. Write the structure and use of any two medicinal compounds containing phenanthrene nucleus. (02 Marks) [**Oct 2022**]
9. What are fused polynuclear hydrocarbons. Give examples. (02 Marks) [**Oct 2022**]
10. Define and classify polynuclear hydrocarbons with examples. Write any three reactions of anthracene. (05 Marks) [**April 2022**]
11. Discuss the methods of preparation of triphenyl methane. Give the names and uses of any two medicinal compounds containing this nucleus. (05 Marks) [**April 2022**]
12. What is Hoffmann rearrangement. (02 Marks) [**April 2022**]
13. Outline any two methods of synthesis of naphthalene and discuss four important reactions of naphthalene. (10 Marks) [**Oct 2021**]
14. Write two important reactions of diphenyl methane and triphenyl methane. (05 Marks) [**Oct 2021, Dec 2020**]
15. Structure and uses of naphthols. (02 Marks) [**Oct 2021**]
16. Outline any two methods of synthesis of anthracene and discuss four important reactions of anthracene. (10 Marks) [**Dec 2020**]
17. Two important reactions of phenanthrene and triphenyl methane. (05 Marks) [**Dec 2020**]
18. What are fused polynuclear hydrocarbons. Write the Haworth synthesis of naphthalene and any two chemical reactions of it. Name the medicinally important derivatives of naphthalene along with uses. (10 Marks) [**Jan 2020, June 2019**]

19. What are isolated polynuclear hydrocarbons. Give any one synthesis and reaction of diphenylmethane. (05 Marks) [**Jan 2020**]
20. Name the medicinally important derivatives of phenanthrene and their uses. (02 Marks) [**Jan 2020, June 2019**]
21. Write the Haworth synthesis of Phenanthrene and write any two reactions, medicinally important derivatives of it along with their uses. (10 Marks) [**Jan 2019**]
22. Name the medicinally important derivatives and uses of naphthalene. (02 Marks) [**Jan 2019**]

UNIT V

Cycloalkanes

1. Discuss the limitations of Baeyer's strain theory. (05 Marks) [**Aug 2023, Oct 2021**]
2. Two important reactions of cyclobutane and cyclopropane. (05 Marks) [**Aug 2023, Oct 2022**]
3. Sachse-Mohr's theory. (02 Marks) [**Aug 2023, Oct 2022**]
4. Write down on Baeyer's strain theory with its limitation. (05 Marks) [**May 2023, Jan 2020, Dec 2020, June 2019**]
5. Write the structure of cyclobutane and naphthalene. (02 Marks) [**May 2023**]
6. Give the structures of cyclo alkanes. (02 Marks) [**May 2023**]
7. Discuss the stability of cycloalkanes on the basis of Baeyer's strain theory. Add a note on its limitations. (10 Marks) [**Oct 2022**]
8. Calculate the angle strain for (a) Cyclobutane (b) Cyclopentane. (02 Marks) [**Oct 2022**]
9. Write the reactions of cyclopropane. (05 Marks) [**April 2022, Dec 2020, Jan 2019**]
10. Draw the strainless conformations of cyclohexane. Comment on the stability of these forms. (02 Marks) [**April 2022**]
11. Important chemical reactions of cyclobutane. (05 Marks) [**Oct 2021**]
12. Coulson and Moffitt's modification. (02 Marks) [**Oct 2021, Dec 2020**]
13. Any one method of synthesis of cyclopropane. (02 Marks) [**Jan 2020**]
14. The bond angles of cyclohexane. (02 Marks) [**Jan 2020, June 2019**]
15. The reactions of cyclobutene. (02 Marks) [**Jan 2020**]
16. Write any two reactions of cycloalkanes. (02 Marks) [**June 2019**]
17. Explain Sachse Mohr's theory. (05 Marks) [**Jan 2019**]
18. Bond angles of cyclopropane. (02 Marks) [**Jan 2019**]

PHYSICAL PHARMACEUTICS-I
(QP CODE: 322006)



UNIT I

1. Explain the factors influencing the solubility of drugs. (10 marks) **(Aug 2023)**
2. The solubility of liquids in liquids based on ideal and real solution. (05 marks) **(Aug 2023)**
3. Explain mole fraction.(02 marks) **(Aug 2023)**
4. The miscibility of liquids based on solubility.(02 marks) **(Aug 2023)**
5. Fick's law of diffusion and its uses. (05 marks) **(May 2023)**
6. What are the different ways of expressing solubility. Write their uses. (05 marks) **(May 2023)**
7. What is Raoult's law and its applications. Explain. (05 marks) **(May 2023)**
8. What are the applications of distribution law. Explain. (05 marks) **(May 2023)**
9. Discuss the solubility of gases in liquids. (05 marks) **(May 2023)**
10. What is solvation. (02 marks) **(May 2023)**
11. What is critical solution temperature. (02 marks) **(May 2023)**
12. Explain the various factors affecting the solubility of gases in liquids.(10 marks) **(Oct 2022)**
13. Summarize the solubility of partially miscible liquids.(05 marks) **(Oct 2022)**
14. Define Raoult's law. (02 marks) **(Oct 2022)**
15. The terms used for expressing solubility. (02 marks) **(Oct 2022)**
16. Solvation and association. (05 marks) **(April 2022)**
17. Explain critical solution temperature and its applications. (05 marks) **(April 2022)**
18. Raoult's law and explain its deviations. (05 marks) **(April 2022)**
19. Evaluate the effect of temperature with respect to solubility. (05 marks) **(Oct 2021)**
20. Explain distribution law and its applications. (05 marks) **(Oct 2021)**
21. Differentiate between solution and binary solution. (02 marks) **(Oct 2021)**
22. Classify the solution based on liquids in liquids.(02 marks) **(Oct 2021)**
23. How gases can be liquefied.(02 marks) **(Oct 2021)**
24. Explain the factors influencing the solubility of drugs with a quantitative approach. (10 marks) **(Dec 2020)**
25. List the factors influencing the solubility of drugs. Explain any two. (05 marks) **(Jan 2020)**
26. What is ideal and real solution. What is its importance. (05 marks) **(Jan 2020)**
27. State and explain distribution law along with its limitations. What are its applications. (10 marks) **(June 2019)**
28. What are the applications of distribution law. (05 marks) **(Jan 2019)**
29. Henry's law of solubility. (02 marks) **(Jan 2019)**

UNIT II

1. Sublimation critical points. (05 marks) **(Aug 2023)**
2. Assess the liquid complexes. (05 marks) **(Aug 2023)**
3. Dielectric constant and its application in pharmacy. (02 marks) **(Aug 2023)**

4. Explain relative humidity and mention its importance.(02 marks) **(Aug 2023)**
5. Discuss any five physicochemical properties of drugs. Explain their determination and applications. (10 marks) **(May 2023)**
6. What are eutectic mixtures. Give examples. (02 marks) **(May 2023)**
7. The influence of relative humidity on storage of pharmaceuticals. (02 marks) **(May 2023)**
8. What is the difference between amorphous and crystalline state of drug. (02 marks) **(May 2023)**
9. Glassy state. (05 marks) **(Oct 2022)**
10. Determination and application of dielectric constant. (05 marks) **(April 2022)**
11. Dipole moment. (02 marks) **(April 2022)**
12. Propellants used in aerosols. (02 marks) **(April 2022)**
13. What are solids. How amorphous and crystalline solids are distinguished.(05 marks) **(Oct 2021)**
14. Humidity and its importance in pharmaceutical science. (05 marks) **(Oct 2021)**
15. Define refractive index and mention any two applications of the same. (02 marks) **(Oct 2021)**
16. Explain the phase diagram of a eutectic system. (05 marks) **(Dec 2020)**
17. Applications of dipole moment. (05 marks) **(Dec 2020)**
18. Optical rotation. (02 marks) **(Dec 2020)**
19. Define latent heat, vapour pressure, sublimation and critical point. (05 marks) **(Jan 2020)**
20. Aerosols and its applications in pharmacy. (05 marks) **(Jan 2020)**
21. Liquid complexes. (05 marks) **(June 2019)**
22. Polymorphism. (02 marks) **(June 2019)**
23. Explain optical rotation and refractive index. Describe their applications and methods of determinations. (10 marks) **(Jan 2019)**
24. Discuss sublimation with the help of a phase diagram.(05 marks) **(Jan 2019)**
25. Define polymorphism. Write their applications in pharmacy. (05 marks) **(Jan 2019)**

UNIT III

1. Explain the methods for the determination of particle size of pharmaceutical Powders. (10 marks)**(Aug 2023)**
2. Determination of surface area by adsorption of gas on powder. (05 marks) **(Aug 2023)**
3. Angle of repose and its applications.(02 marks) **(Aug 2023)**
4. Bulkiness. (02 marks) **(Aug 2023)**
5. How surface area can be determined. Explain. What are its uses. (05 marks) **(May 2023)**
6. Define true density, bulk density, porosity, angle of repose and write their uses. (05 marks) **(May 2023)**
7. Particle number. (02 marks) **(May 2023)**
8. Explain the different methods for the determination of average particle size and particle size distribution. Explain in detail about the sieving technique.(10 marks) **(Oct 2022)**
9. Explain micromeritics. Write its application in pharmaceutical sciences. (05 marks) **(Oct 2022)**

10. Demonstrate any two methods for the determination of true density. (05 marks) **(Oct 2022)**
11. Enlist the scientific ways of expressing particle size distribution. (02 marks) **(Oct 2022)**
12. Particle number.(02 marks) **(Oct 2022)**
13. Explain the methods of determining flow properties of a given sample. (05 marks) **(April 2022)**
14. Examine how particle volume is measured by electrical method.(10 marks) **(Oct 2021)**
15. Outline the merits and demerits of microscopic technique in particle size distribution and how it can be improved. (05 marks) **(Oct 2021)**
16. Enlist the methods available for particle size analysis.(02 marks) **(Oct 2021)**
17. Explain porosity.(02 marks) **(Oct 2021)**
18. Particle shape. (02 marks) **(Oct 2021)**
19. Explain Andreasen's pipette method of determining particle size. (05 marks) **(Dec 2020)**
20. Define specific surface. Give its importance. (02 marks) **(Dec 2020)**
21. Angle of repose. (02 marks) **(Dec 2020)**
22. List the derived properties of powder. How they are evaluated. (10 marks) **(Jan 2020)**
23. Explain angle of repose.(02 marks) **(Jan 2020)**
24. Any two advantages and disadvantages of microscopic method of study of powders.(02 marks) **(Jan 2020)**
25. What are the applications of Coulter-counter apparatus in pharmacy. (02 marks) **(Jan 2020)**
26. What is number and weight distribution of particle size. (02 marks) **(Jan 2020)**
27. List the methods to determine surface area. (02 marks) **(Jan 2020)**
28. Explain the derived properties of powders. (10 marks) **(June 2019)**
29. Air permeability method. (05 marks) **(June 2019)**
30. Particle size determination by Anderson pipette method. (05 marks) **(Jan 2019)**
31. Describe different graphic presentations of size distribution data in a powder. (05 marks) **(Jan 2019)**
32. What is meant by Carr's index . (02 marks) **(Jan 2019)**

UNIT IV

1. The different applications of complexation. (05 marks) **(Aug 2023)**
2. Classify the metal ion coordination complexes. (02 marks) **(Aug 2023)**
3. Explain the methods of complex analysis techniques. (02 marks) **(Aug 2023)**
4. What are Clathrates. (02 marks) **(May 2023)**
5. Any two uses of complexation in pharmacy. (02 marks) **(May 2023)**
6. What are smectic crystals. (02 marks) **(May 2023)**
7. Elaborate about hydrogen bonded complexes. (05 marks) **(Oct 2022)**
8. Classify the metal ion coordination complexes.(02 marks) **(Oct 2022)**
9. Define complexation. Classify different types of complexes. Explain any two methods of complex analysis. (10 marks) **(April 2022)**

10. Protein binding of drugs. (02 marks) (**April 2022**)
11. Explain any two methods for the analysis of complexes.(10 marks) (**Oct 2021**)
12. Applications of complexation. (05 marks) (**Oct 2021**)
13. Explain and discuss the solubility method and pH titration methods of analysis of complexation. (10 marks) (**Jan 2020**)
14. What is protein binding. Write its influence on drug activity. (05 marks) (**Jan 2020**)
15. Explain the method of continuous variation for the analysis of complexes. (05 marks) (**June 2019**)
16. Metal complexes in biological system. (05 marks) (**June 2019**)
17. Metal olefin complexes. (02 marks) (**June 2019**)
18. Inclusion complex. (02 marks) (**June 2019**)
19. Explain with examples, the influence of complexation on drug action. (05 marks) (**Jan 2019**)
20. The principle involved in the method of pH titration in complexation. (02 marks) (**Jan 2019**)
21. Differentiate between Chelate and an inorganic complex. Give example. (02 marks) (**Jan 2019**)

UNIT V

1. Give a methodology for determination of pH by colorimetric method. (05 marks) (**Aug 2023**)
2. Interpret the buffers in pharmaceutical and biological systems.(05 marks) (**Aug 2023**)
3. Define buffer and buffer capacity. What are buffered isotonic solutions. How they are prepared. Explain. (10 marks) (**May 2023**)
4. pH determination by electrometric method. (02 marks) (**May 2023**)
5. Buffer capacity- 05 marks (Oct 2022)
6. Define the term Buffer. (02 marks) (**Oct 2022**)
7. What are the various factors influencing the pH of buffer solution. (02 marks) (**Oct 2022**)
8. Explain pH determination and its applications. (05 marks) (**April 2022**)
9. Sorenson's pH scale. (02 marks) (**April 2022**)
10. Explain isotonic solution. Give a detailed method of cryoscopy technique. (05 marks) (**Oct 2021**)
11. What is buffer capacity. Explain the various methods for adjusting tonicity and the importance of pharmaceutical buffers. (10 marks) (**Dec 2020**)
12. Explain pH titration method. (05 marks) (**Dec 2020**)
13. What is buffer equation and buffer capacity.(02 marks) (**Jan 2020**)
14. Buffer equation. (02 marks) (**June 2019**)
15. Isotonic solutions . (02 marks) (**Jan 2019**)

PHARMACEUTICAL MICROBIOLOGY

(QP CODE: 323006)



UNIT I

1. Suggest two methods each to determine viable count and total count of bacteria. (02 marks) **(August 2023)**.
2. Two examples each for anaerobes and aerobes. (02 marks) **(August 2023)**.
3. Anaerobic media with an example. (02 marks) **(August 2023)**.
4. Nutritional requirements of bacteria. (02 marks) **(May 2023), (June 2019)**.
5. Describe the various methods exercised for the identification of bacteria. (10 marks) **(October 2022)**.
6. Enumeration of bacteria. (05 marks) **(October 2022)**.
7. Physical factors affecting microbial growth. (05 marks) **(October 2022)**.
8. Principle of phase-contrast microscope. (02 marks) **(October 2022)**
9. Differentiate prokaryotes and eukaryotes. (02 marks) **(October 2022), (June 2019)**.
10. Describe the methods used in the isolation of pure cultures of bacteria. (10 marks) **(April 2022)**.
11. Detail the various methods of cultivation of anaerobic bacteria. (05 marks) **(April 2022)**.
12. Principle of phase-contrast microscope. (02 marks) **(April 2022)**.
13. Detail the methods of preservation of microbial cultures. Write a note on the various components of a bacterial culture media. (10 marks) **(October 2021)**.
14. Design and operation of electron microscope. (05 marks) **(October 2021)**.
15. Functions of bacterial cell wall. (02 marks) **(October 2021)**.
16. Differentiate flagella and pili. (02 marks) **(October 2021)**.
17. Enumerate and explain the methods to determine viable and total count of bacteria. (10 marks) **(December 2020)**.
18. Explain bacterial growth curve. (05 marks) **(December 2020)**.
19. Explain the cultivation of anaerobes. (05 marks) **(December 2020)**.
20. List the contributions of Paul Ehrlich and Edward Jenner to the field of microbiology. (02 marks) **(December 2020)**.
21. Preservation methods for pure culture of bacteria. (02 marks) **(December 2020)**.
22. What is roll tube method. (02 marks) **(December 2020)**.
23. What are Psychrophiles. (02 marks) **(December 2020)**.
24. Cultivation of anaerobic bacteria. (05 marks) **(January 2020)**.
25. Quantitative measurement of bacterial growth. (05 marks) **(January 2020)**.
26. Differences between pili and fimbriae. (02 marks) **(January 2020)**.
27. Describe the phases of normal growth curve of typical bacterium. Add a note on raw materials used for bacterial culture media. (10 marks) **(June 2019)**.
28. Describe the phases of normal growth curve of typical bacterium. Add a note on raw materials used for bacterial culture media. (05 marks) **(June 2019)**.

29. Working and application of electron microscope. (05 marks) **(June 2019)**.
30. What is resolving power of a microscope. (02 marks) **(June 2019)**.
31. Physical conditions required for microbial growth. (05 marks) **(January 2019)**.
32. Functions of bacterial capsule. (02 marks) **(January 2019)**.

UNIT II

1. Four examples for chemical indicators of sterilization. (02 marks) **(August 2023)**.
2. Explain the principle and procedure involved in acid fast staining technique. Give two examples each for acidic, basic and negative stains. (10 marks) **(May 2023)**.
3. Physical and chemical indicators used for evaluation of sterilizers. (05 marks) **(May 2023)**.
4. List any two applications each of UV and gamma radiation sterilization. (02 marks) **(May 2023)**.
5. Sterilization method for eye drops and surgical blades. (02 marks) **(May 2023)**.
6. Moist heat sterilization. (05 marks) **(October 2022)**.
7. IMViC biochemical tests. (02 marks) **(October 2022)**.
8. Biological indicators used in the validation of sterilization. (02 marks) **(October 2022)**.
9. Applications of radiation sterilization. (02 marks) **(October 2022)**.
10. Chemical monitors of sterilization. (02 marks) **(October 2022)**.
11. Explain dry heat sterilization. (10 marks) **(April 2022)**.
12. Principle of Gram's staining technique. (02 marks) **(April 2022), (June 2019)**.
13. Explain pasteurisation. (02 marks) **(October 2021)**.
14. Explain the principle, procedure, merits and demerits of sterilization by gamma radiation. (10 marks) **(December 2020)**.
15. Explain IMViC tests for identification of bacteria. (05 marks) **(December 2020)**.
16. Sterilization method for oily injections and enzyme solutions. (02 marks) **(December 2020)**.
17. Chemical indicators used in the evaluation of sterilization methods. (02 marks) **(January 2020)**.
18. Explain the principle, procedure, merits, demerits and applications of moist heat sterilization. (10 marks) **(June 2019)**.
19. Dry heat sterilization. (05 marks) **(January 2019)**.
20. Acid fast staining. (02 marks) **(January 2019)**.
21. Witness tube as sterilization monitor. (02 marks) **(January 2019)**.
22. Applications of gaseous sterilization. (02 marks) **(January 2019)**.
23. Which tests are known as IMViC biochemical tests. (02 marks) **(January 2019)**.

UNIT III

1. Describe Rideal Walker test for disinfectant evaluation. (10 marks) **(August 2023)**.
2. Two methods for virus cultivation. (02 marks) **(August 2023)**.
3. Differentiate bacteriostatic and bactericidal agents. (02 marks) **(August 2023)**.

4. List the bacteriostatic and bactericidal methods for evaluation of disinfectants and explain phenol co-efficient method. (10 marks) **(May 2023)**.
5. Explain the principle and procedure involved in sterility testing of sterile products. (05 marks) **(May 2023)**.
6. Morphological classification of fungi (02 marks). **(May 2023)**.
7. Enumerate the methods of cultivation of virus. (02 marks) **(May 2023), (October 2022)**.
8. Detail the methods of evaluation of disinfectants. (10 marks) **(October 2022)**.
9. Factors affecting disinfection. (05 marks) **(October 2022)**.
10. Differentiate bacteria and viruses. (02 marks) **(October 2022)**.
11. Cultivation of viruses. (05 marks) **(April 2022), (January 2020)**.
12. Different types of reproduction in fungi. (02 marks) **(April 2022)**.
13. Explain briefly sterility tests performed on pharmaceutical products. (05 marks) **(October 2021)**.
14. Determination of Rideal-Walker coefficient. (05 marks) **(October 2021)**.
15. Explain the mode of action of any two disinfectants. (02 marks) **(October 2021)**.
16. Classification of virus. (02 marks) **(December 2020)**.
17. Define Rideal-Walker co-efficient. Write the formula for calculation. (02 marks) **(December 2020)**.
18. Discuss the phenol coefficient methods used for evaluation of disinfectants. (10 marks) **(January 2020)**.
19. Sterility testing of pharmaceutical products. (05 marks) **(January 2020), (June 2019)**.
20. Differences between antiseptics and disinfectants. (02 marks) **(January 2020)**.
21. Different types of fungal spores. (02 marks) **(January 2020)**.
22. Determination of Chick Martin coefficient. (05 marks) **(June 2019)**.
23. Reproduction of fungi. (05 marks) **(January 2019)**.
24. Rideal Walker coefficient. (05 marks) **(January 2019)**.

UNIT IV

1. Types of microbiological assays. (02 marks) **(August 2023)**.
2. Define and classify clean area. (02 marks) **(May 2023)**.
3. Classification of clean areas. (02 marks) **(October 2022), (October 2021), (January 2020)**.
4. Design of aseptic area. (05 marks) **(April 2022)**.
5. Design and operation of laminar flow equipment. (05 marks) **(October 2021)**.
6. Microbiological assay of vitamins. (05 marks) **(October 2021), (June 2019)**.
7. Sources of contamination in aseptic area and the methods for their prevention. (05 marks) **(December 2020)**.
8. Design of laminar flow equipment. (05 marks) **(January 2020)**.
9. Design of aseptic rooms. (05 marks) **(June 2019)**.
10. Microbiological assay of antibiotics. (05 marks) **(January 2019), (January 2020), (October 2021)**.
11. Classify clean area. (02 marks) **(January 2019)**.

UNIT V

1. List any four factors affecting microbial spoilage of pharmaceuticals. (02 marks) **(May 2023)**.
2. Lyophilization and cryopreservation. (02 marks) **(May 2023)**.
3. Explain the types of microbial spoilage for pharmaceutical products. (05 marks) **(October 2022)**.
4. Explain the culture media used in animal cell culture. (05 marks) **(October 2022)**.
5. Procedure of animal cell culture. (02 marks) **(April 2022)**.
6. Detail the methods of preservation of microbial cultures. Write a note on the various components of a bacterial culture media. (10 marks) **(October 2021)**.
7. Types of microbial spoilage in pharmaceutical products. (02 marks) **(December 2020)**.
8. Preservation methods for pure culture of bacteria. (02 marks) **(December 2020)**.
9. Steps involved in animal cell culture. (02 marks) **(December 2020)**.
10. Principle of animal cell culture. (02 marks) **(January 2020)**.
11. Microbial spoilage of pharmaceutical products. (05 marks) **(June 2019)**.
12. Describe the sources, types and assessment of microbial contaminants. (10 marks) **(January 2019)**.
13. Describe the methods used for isolation and preservation of pure cultures. (10 marks) **(January 2019)**.
14. Animal cell culture media. (05 marks) **(January 2019)**.



PHARMACEUTICAL ENGINEERING

(QP CODE: 324006)



UNIT-I**Flow of fluids, Size Reduction, Size Separation, Mixing**

1. Explain the construction of Hammer mill with its demerits. (05 marks)[**May 2023**].
2. Explain Energy losses for flow of fluids. (05 marks) [**May 2023**].
3. Working of planetary mixer with a labelled diagram. (05 marks) [**May 2023**].
4. Labelled diagram of venturi meter. (02 marks)[**May 2023**].
5. Mechanism of size reduction. (02 marks)[**May 2023**].
6. Demerits of Sieve shaker. (02 marks)[**May 2023**].
7. Turbines. (02 marks)[**May 2023**].
8. Discuss about propellers, turbines and paddles with diagrams. (10 marks) [**Aug 2023**].
9. Explain the different laws governing size reduction. (05 marks) [**Aug 2023**].
10. Write the different grades of powders with standard IP specifications. (05 marks)[**Aug 2023**].
11. Explain the construction and working of orifice meter with diagram. (05 marks) [**Aug 2023**].
12. Mechanisms of solid mixing. (02 marks) [**Aug 2023**].
13. Uses of mechanical sieve shaker machine. (02 marks) [**Aug 2023**].
14. Advantages of hammer mill. (02 marks) [**Aug 2023**].
15. State and derive Bernoulli's theorem. Give its applications in pharmacy. (10 marks) [**Oct 2022**].
16. Explain the construction and working of Air separator with neat diagram. (05 marks) [**Oct 2022**].
17. Manometers. (02 marks) [**Oct 2022**].
18. Mechanisms of size separation. (02 marks) [**Oct 2022**].
19. Design of V-cone blender. (02 marks) [**Oct 2022**].
20. Describe the principle and factors affecting size reduction. Discuss in detail about fluid energy mill. (10 marks) [**Apr 2022**].
21. Explain about the Bernoulli's theorem and its applications. (05 marks) [**Apr 2022**].
22. Discuss the working principle of cyclone separator with neat diagram. (05 marks) [**Apr 2022**].
23. Planetary mixer. (05 marks) [**Apr 2022**].
24. Turbulent flow. (02 marks) [**Apr 2022**].
25. Raoult's law. (02 marks) [**Apr 2022**].
26. Rotameter. (02 marks) [**Apr 2022**].
27. Explain the principle, construction and working of ball mill. (05 marks) [**Oct 2021**].
28. State Bernoulli's theorem with equation and give two applications. (05 marks) [**Oct 2021**].
29. Explain working of double cone blender with diagram. (05 marks) [**Oct 2021**].
30. Discuss the construction and working of cyclone separator. (05 marks) [**Oct 2021**].
31. Types of manometers. (02 marks) [**Oct 2021**].
32. Factors affecting size reduction. (02 marks) [**Oct 2021**].

33. Merits of Sieve shaker. (02 marks) **[Oct 2021]**.
34. Difference between solid and liquid mixing. (02 marks) **[Oct 2021]**.
35. Explain the principle, construction, working and applications of orifice meter. (10 marks) **[Jan 2020]**.
36. Explain principle and working of Silverson mixer with neat labelled diagram. (10 marks) **[Jan 2020]**.
37. Ball mill with diagram. (05 marks) **[Jan 2020]**.
38. Applications of size reduction. (02 marks) **[Jan 2020]**.
39. Labelled diagram of cyclone separator. (02 marks) **[Jan 2020]**.
40. Objectives of mixing. (02 marks) **[Jan 2020]**.
41. Explain the principle, construction and working of ball mill. (05 marks) **[Dec 2020]**.
42. Discuss the types of manometer. (05 marks) **[Dec 2020]**.
43. Sigma blade mixer. (05 marks) **[Dec 2020]**.
44. Turbulent flow. (05 marks) **[Dec 2020]**.
45. List out the equipment used for liquid mixing. (02 marks) **[Dec 2020]**.
46. Solid mixing. (05 marks) **[Jan 2019]**.
47. Principle and working of sieve shaker. (05 marks) **[Jan 2019]**.
48. Fluid energy mill. (05 marks) **[Jan 2019]**.
49. Differentiate between orifice meter and venturi meter. (02 marks) **[Jan 2019]**.
50. Applications of mixing. (02 marks) **[Jan 2019]**.
51. Mechanisms of size separation. (02 marks) **[Jan 2019]**.

UNIT II

Evaporation, Heat Transfer

1. Explain the heat transmission through a circular pipe by Fourier's law using suitable equations and a labelled diagram (10 marks) **[May 2023]**.
2. Describe the principle and construction of horizontal tube evaporator. (05 marks) **[May 2023]**.
3. Factors influencing evaporation. (02 marks) **[May 2023]**.
4. Economy of multiple effect evaporators. (02 marks) **[May 2023]**.
5. Types of heat transfer mechanisms. (02 marks) **[May 2023]**.
6. Explain the theories of heat transfer by radiation. (05 marks) **[Aug 2023]**.
7. Explain the construction and working of horizontal tube evaporator with a neat diagram. (05 marks) **[Aug 2023]**.
8. Mechanisms of heat transfer. (02 marks) **[Aug 2023]**.
9. Write about heat interchangers for heat transfer. (05 marks) **[Oct 2022]**.
10. Explain the construction and working of climbing film evaporator with neat diagram. (05 marks) **[Oct 2022]**.
11. Define black body and grey body. (02 marks) **[Oct 2022]**.
12. Explain about multiple effect evaporators. (05 marks) **[Apr 2022]**.
13. Fourier's law of heat transfers by conduction across a metal wall. (05 marks) **[Apr 2022]**.

14. Stefan Boltzmann law. (02 marks) [**Apr 2022**].
15. Bonds theory and its importance. (02 marks) [**Apr 2022**].
16. Explain the working of multiple effect evaporator. (05 marks) [**Oct 2021**].
17. Explain heat exchanger with a labelled. (05 marks) [**Oct 2021**].
18. Applications of evaporation. (02 marks) [**Oct 2021**].
19. Heat interchangers. (02 marks) [**Oct 2021**].
20. Explain the principle and working of a heat interchanger with a labelled diagram. (05 marks) [**Jan 2020**].
21. Grey body. (02 marks) [**Jan 2020**].
22. Fourier's law. (02 marks) [**Jan 2020**].
23. Explain the various factors affecting evaporation with the help of a neat diagram. Explain the principle, construction and working of climbing film evaporator. (10 marks) [**Dec 2020**].
24. Explain about Fourier's law. (05 marks) [**Dec 2020**].
25. Uses of Forced Circulation Evaporator. (02 marks) [**Dec 2020**].
26. Define grey body. (02 marks) [**Dec 2020**].
27. Explain about double-pipe heat inter changer. (05 marks) [**Jan 2019**].
28. Dalton's law. (02 marks) [**Jan 2019**].
29. What are heat exchangers. (02 marks) [**Jan 2019**].
30. Define conduction, convection and radiation. (02 marks) [**Jan 2019**].
31. Classify evaporators. (02 marks) [**Jan 2019**].

UNIT- III
Drying, Distillation

1. Explain the principle, construction and working of fluidized bed dryer with a labelled diagram (10 marks) [**May 2023**].
2. Application of fractional distillation, (02 marks) [**May 2023**].
3. Describe the principle, construction, working and uses of Fluidized bed dryer with neat labelled diagram. (10 marks) [**Aug 2023**].
4. Define EMC and FMC in relation to drying. (02 marks) [**Aug 2023**].
5. Differentiate between simple and steam distillation. (02 marks) [**Aug 2023**].
6. Describe the drying rate curve. (05 marks) [**Oct 2022**].
7. Fractional distillation. (05 marks) [**Oct 2022**].
8. Applications of spray dryer. (02 marks) [**Oct 2022**].
9. Applications of distillation. (02 marks) [**Oct 2022**].
10. Define bound and unbound water. (02 marks) [**Oct 2022**].
11. Bound water. (02 marks) [**Apr 2022**].
12. Explain principle, construction, working, uses of steam distillation process with a neat labelled diagram. (10 marks) [**Oct 2021**].
13. Diagram Describe drying rate curves. (05 marks) [**Oct 2021**].

14. Demerits of fractional distillation process. (02 marks) [Oct 2021].
15. Draw the drying rate curve with explanation of each phase. (05 marks) [Jan 2020].
16. Principle and working of fluidized bed dryer. (05 marks) [Jan 2020].
17. Types of dryers. (02 marks) [Jan 2020].
18. Types of fractionating columns. (02 marks) [Jan 2020].
19. Differentiate between evaporation and distillation. (02 marks) [Jan 2020].
20. Explain the principle, construction and working procedure of fractional distillation apparatus. Illustrate the fractional distillation of the mixture of components with the boiling point composition curve. (10 marks) [Dec 2020].
21. Fluidized bed dryer. (05 marks) [Dec 2020].
22. Bound and unbound water. (02 marks) [Dec 2020].
23. Detailed note on freeze dryer with labelled diagram. (10 marks) [Jan 2019].
24. Principle and working of fractional distillation. (05 marks) [Jan 2019].
25. Applications of drying. (02 marks) [Jan 2019].

UNIT-IV

Filtration, Centrifugation

1. Explain the construction and working of non-perforated basket centrifuge. (05 marks) [May 2023].
2. Bag filter with a diagram. (05 marks) [May 2023].
3. Differentiate between Meta filter and cartridge filter with diagrams. (05 marks) [May 2023].
4. Describe the theory of centrifugation. (05 marks) [Aug 2023]
5. Enlist the factors influencing the filtration. (02 marks) [Aug 2023]
6. Applications of super centrifuge. (02 marks) [Aug 2023].
7. Describe the construction and working of Plate and frame filter press with neat diagram. (10 marks) [Oct 2022].
8. Filter leaf. (02 marks) [Oct 2022].
9. Discuss the working principles of plate and frame filter. (05 marks) [Apr 2022].
10. Applications of filtration. (02 marks) [Apr 2022].
11. Filter aids. (02 marks) [Apr 2022].
12. Explain the principle, construction and working of perforated basket centrifuge with a neat labelled diagram. (10 marks) [Oct 2021].
13. Filter aids. (02 marks) [Oct 2021].
14. Briefly explain in detail about drum filter. (05 marks) [Jan 2020].
15. Factors influencing filtration. (02 marks) [Jan 2020].
16. Explain the principle, construction, working and applications of filter leaf. (10 marks) [Dec 2020].
17. Filter Medias. (02 marks) [Dec 2020].
18. Equilibrium moisture content. (02 marks) [Dec 2020].
19. Centrifugal effect. (02 marks) [Dec 2020].

20. Describe in detail about the principle, assembly and working of plate and frame filter press with merits and demerits. (10 marks) **[Jan 2019]**.
21. Centrifugal effect. (02 marks) **[Jan 2019]**.
22. Advantages of bag filter. (02 marks) **[Jan 2019]**.

UNIT- V

Materials of pharmaceutical plant construction, Corrosion and its prevention, Material handling systems

1. Screw conveyors. (02 marks) **[May 2023]**.
2. Factors influencing selection of materials for Pharmaceutical plant construction. (05 marks) **[Aug 2023]**.
3. Belt conveyors. (02 marks) **[Aug 2023]**.
4. Types of ferrous metals used in pharmaceutical plant design. (02 marks) **[Aug 2023]**.
5. Explain screw conveyors with neat diagram. (05 marks) **[Oct 2022]**.
6. Theories of corrosion. (05 marks) **[Oct 2022]**.
7. Enlist factors affecting corrosion. (02 marks) **[Oct 2022]**.
8. Types of stainless steel. (02 marks) **[Oct 2022]**.
9. Define corrosion. Classify the types of corrosion. Explain in detail about the methods for its prevention. (10 marks) **[Apr 2022]**.
10. Stainless steel as material for plant construction. (05 marks) **[Apr 2022]**.
11. Pneumatic conveyor. (02 marks) **[Apr 2022]**.
12. Types of glass as material for plant construction. (02 marks) **[Apr 2022]**.
13. Theory of corrosion. (02 marks) **[Oct 2022]**.
14. Types of conveyors. (02 marks) **[Oct 2022]**.
15. Factors influencing selection of materials for plant construction. (05 marks) **[Jan 2020]**.
16. Theories of corrosion. (05 marks) **[Jan 2020]**.
17. Prevention of corrosion. (02 marks) **[Jan 2020]**.
18. Discuss about theories of corrosion. (05 marks) **[Dec 2020]**.
19. Types of pharmaceutically important glass. (02 marks) **[Dec 2020]**.
20. Types of conveyors. (02 marks) **[Dec 2020]**.
21. Brief note on materials handling systems. (5 marks) **[Jan 2019]**.
22. Explain the prevention and control of corrosion. . (5 marks) **[Jan 2019]**.

FOURTH SEMESTER B.PHARM



PHARMACEUTICAL ORGANIC CHEMISTRY III

(QP CODE: 421006)



UNIT I**Optical Isomerism**

1. Summarize the criteria for a compound to be optically active. Illustrate the methods used in resolution of racemic mixture. (10 marks) **[July 2023]**
2. What are the different types of asymmetric synthesis. (02 marks) **[July 2023]**
3. What is D and L nomenclature. (02 marks) **[July 2023]**
4. Define resolution. Explain two methods of resolution. (05 marks) **[March 2023]**
5. Any two reactions of Furan. (02 marks) **[March 2023]**
6. Any two reactions of Furan. (02 marks) **[March 2023]**
7. Define optical activity. (02 marks) **[March 2023]**
8. Define Meso compounds. (02 marks) **[March 2023]**
9. Define enantiomers. (02 marks) **[March 2023]**
10. Define racemic modification. Explain any three methods for the resolution of racemic modification. (05 marks) **[Nov. 2022]**
11. Define D and L system of nomenclature. (02 marks) **[Nov. 2022]**
12. Define meso compound with example. (02 marks) **[Nov. 2022]**
13. Define Fischer projection formula. (02 marks) **[Nov. 2022]**
14. Explain racemic modification and resolution of racemic mixture with suitable example. (10 marks) **[June 2022]**
15. Explain Diastereoisomerism (05 marks) **[June 2022]**
16. Optical activity. (02 marks) **[June 2022]**
17. What are meso compounds. (02 marks) **[June 2022]**
18. Achiral molecule. (02 marks) **[June 2022]**
19. Sequence rule. (02 marks) **[June 2022]**
20. Define racemic modification, racemization and resolution. Explain any four methods for the resolution of racemic modification (10 marks) **[Dec. 2021]**
21. Explain elements of symmetry. (05 marks) **[Dec. 2021]**
22. Define asymmetric synthesis. (02 marks) **[Dec. 2021]**
23. Sequence rules. (02 marks) **[Dec. 2021]**
24. Define diastereomers with example. (02 marks) **[Dec. 2021]**
25. Explain partial asymmetric synthesis. (05 marks) **[April 2021]**
26. Explain the difference between d, l and D, L notations (02 marks) **[April 2021]**
27. Define achiral molecule. (02 marks) **[April 2021]**
28. Asymmetric synthesis. (05 marks) **[Dec. 2019]**
29. What is a chiral molecules. Explain enantiomerism with suitable examples. (05 marks) **[Dec. 2019]**

30. Explain the elements of symmetry. (05 marks) [Dec. 2019]
31. Newman projection formula (02 marks) [Dec. 2019]
32. Define racemic modification and resolution. (02 marks) [Dec. 2019]
33. Explain DL system and RS system of nomenclature of optical isomers. (10 marks) [July 2019]
34. Explain Enantiomerism. (05 marks) [July 2019]
35. Explain racemic modification with an example. (02 marks) [July 2019]
36. Define elements of symmetry. (02 marks) [July 2019]
37. Optical Inactivity of organic compounds. (02 marks) [July 2019]
38. Chiral molecule. (02 marks) [July 2019]

UNIT II

Geometric Isomerism

1. Short notes on Conformational isomerism of cyclohexane. (05 marks) [July 2023]
2. Explain the Cis Trans and EZ system for the nomenclature of geometrical isomerism. (05 marks) [July 2023]
3. Discuss about stereoisomerism in biphenyl compounds. (05 marks) [July 2023]
4. Define Staggered and eclipsed conformations. (02 marks) [July 2023]
5. What is R and S nomenclature. (02 marks) [July 2023]
6. Explain in detail about atropisomerism. (10 marks) [March 2023]
7. Define staggered and eclipsed conformations. (02 marks) [March 2023]
8. Explain the stereochemistry of biphenyls and conditions for optical activity. (10 marks) [Nov 2022]
9. What are stereospecific and stereoselective reactions, explain with suitable examples. (05 marks) [Nov 2022]
10. Explain the various conformational isomers in cyclohexane. (05 marks) [Nov. 2022]
11. Define geometrical isomerism. (02 marks) [Nov. 2022]
12. Define R and S configuration with example. (02 marks) [Nov. 2022]
13. Explain stereoisomerism in biphenyl compounds. (05 marks) [June 2022]
14. Explain conformational isomerism in Ethane. (05 marks) [June 2022]
15. Cis–trans isomers. (02 marks) [June 2022]
16. Explain methods of determination of configuration of Geometrical isomers. (10 marks) [April 2021]
17. Explain the stereochemistry of biphenyls. (05 marks) [Dec. 2021]
18. Explain the various conformations of ethane. (05 marks) [Dec. 2021]
19. E and Z nomenclature. (02 marks) [Dec. 2021]
20. Write in detail about stereoselective synthesis (Reactions). (05 marks) [April 2021]
21. Explain Nomenclature of Cis, trans isomers. (05 marks) [April 2021]
22. Explain conformational isomerism in cyclohexane. (05 marks) [April 2021]
23. Geometrical isomerism. (02 marks) [April 2021]
24. Explain the various conformational isomers in n-Butane and add a note on their relative stabilities. (10 marks)

[Dec 2019]

25. Explain the stereochemistry of biphenyls. (05 marks) **[Dec. 2019]**
26. Define configuration and mention its types. (02 marks) **[Dec. 2019]**
27. Define Cis Trans isomerism with examples (02 marks) **[Dec. 2019]**
28. Explain conformational isomerism in n- butane. (05 marks) **[July 2019]**
29. Define atropisomerism. (02 marks) **[July 2019]**
30. Define conformational isomerism. (02 marks) **[July 2019]**

UNIT III

Heterocyclic Compounds - I

1. Explain electrophilic substitution reactions of furan. (05 marks) **[July 2023]**
2. Any two reactions of pyrrole. (02 marks) **[July 2023]**
3. Give the structure of oxazole and thiazole with medicinal uses of any one compound with basic nucleus of each. (02 marks) **[July 2023]**
4. Write short notes on nomenclature of heterocyclic compounds. (05 marks) **[March 2023]**
5. Explain aromaticity, basicity and reactions of pyrrole. (05 marks) **[March 2023]**
6. Any one method of preparation of thiophene. (02 marks) **[March 2023]**
7. Explain the aromaticity of pyrrole, thiophene and furan. (05 marks) **[Nov 2022]**
8. Write the resonance structures of thiophene. (02 marks) **[Nov 2022]**
9. Give the reduction reaction for Furan. (02 marks) **[Nov 2022]**
10. Give two methods for synthesis of Oxazole and pyrrole. (05 marks) **[June 2022]**
11. Explain the any one method of synthesis of Furan. (02 marks) **[June 2022]**
12. Explain any one method of synthesis of Thiazole. (02 marks) **[June 2022]**
13. Discuss the aromaticity and chemical reactivity of furan, thiophene and pyrrole. (10 marks) **[Dec 2021]**
14. Give the reaction for conversion of furan to furoic acid. (02 marks) **[Dec 2021]**
15. Explain relative aromaticity of Thiophene, Furan, Pyrrole. (05 marks) **[April 2021]**
16. Why pyrrole is more reactive in electrophilic substitution than benzene. (02 marks) **[April 2021]**
17. Compare the aromaticity of pyrrole, thiophene and furan. (05 marks) **[Dec 2019]**
18. Give two methods for synthesis of purine and thiophene. (05 marks) **[July 2019]**
19. Explain basicity of pyrrole. (05 marks) **[July 2019]**

UNIT IV

Heterocyclic Compounds - II

1. Explain aromaticity, basicity and reactions of pyridine. (05 marks) **[July 2023]**
2. Give any three methods of preparations of Indole. (05 marks) **[July 2023]**
3. Write the synthesis of purines. Mention one derivative containing purine and its medicinal use. (05 marks) **[July 2023]**
4. Any one method of preparation of quinoline. (02 marks) **[July 2023]**

5. Name any one medicinal compound having basic nucleus of furan, azepine, quinoline and indole. (02 marks) **[July 2023]**
6. Explain electrophilic substitution reactions of pyridine. (05 marks) **[March 2023]**
7. Give any three methods of preparations of quinoline. (05 marks) **[March 2023]**
8. Write the synthesis of azepines. Mention one derivative containing azepine and its medicinal use. (05 marks) **[March 2023]**
9. Draw the chemical structures of pyrazole, imidazole, oxazole and thiazole. (02 marks) **[March 2023]**
10. Any one medicinal drug having acridine nucleus. (02 marks) **[March 2023]**
11. Basicity of pyrrole and compare its basicity with pyridine. (05 marks) **[Nov 2022]**
12. Give the synthesis and reactions of indole. (05 marks) **[Nov 2022]**
13. Write the synthesis and reactions of acridine. (05 marks) **[Nov 2022]**
14. Write the structure and medicinal uses of pyrazole derivative. (02 marks) **[Nov 2022]**
15. Write the structure and medicinal uses of purine derivative. (02 marks) **[Nov 2022]**
16. Give any two methods of synthesis and medicinal uses of quinoline and pyridine. (05 marks) **[June 2022]**
17. Describe the electrophilic substitution reactions of Isoquinoline and acridine. (05 marks) **[June 2022]**
18. Explain the chemical structure of purine and pyrimidine. (02 marks) **[June 2022]**
19. Give the synthesis and reactions of quinoline. (05 marks) **[Dec 2021]**
20. Give the synthesis and reactions of imidazole. (05 marks) **[Dec 2021]**
21. Basicity of pyrrole and compare its basicity with pyridine. (05 marks) **[Dec 2021]**
22. Outline Chichibabin reaction. (02 marks) **[Dec 2021]**
23. Explain the structure and medicinal uses of pyridine derivative. (02 marks) **[Dec 2021]**
24. Explain the derivatives of azepine and mention its uses. (02 marks) **[Dec 2021]**
25. Give any two methods for the synthesis and medicinal uses imidazole and furan (05 marks) **[April 2021]**
26. Describe the electrophilic substitution reactions of quinoline and indole. (05 marks) **[April 2021]**
27. Explain the chemical structure of quinoline and acridine. (02 marks) **[April 2021]**
28. Explain any one method of synthesis of azepines. (02 marks) **[April 2021]**
29. Explain the chemical structure and uses of azepine and Pyridine. (02 marks) **[April 2021]**
30. Write any one method of synthesis of indole. (02 marks) **[April 2021]**
31. Give two methods for synthesis and four reactions for Indole and Isoquinoline. (10 marks) **[Dec 2019]**
32. Outline chichibabin reaction for quinoline. (02 marks) **[Dec 2019]**
33. Compare the basicity of pyrrole with pyridine. (02 marks) **[Dec 2019]**
34. Give the reduction reaction for pyridine. (02 marks) **[Dec 2019]**
35. Give two methods for synthesis of pyrimidine and pyrrole, (05 marks) **[July 2019]**
36. Explain basicity of pyridine. (05 marks) **[July 2019]**
37. Write the Chemical structure and medicinal uses of isoquinoline. (02 marks) **[July 2019]**
38. Write the chemical structure and uses of Indole. (02 marks) **[July 2019]**

39. Write the uses of pyrimidine and azepine. (02 marks) [July 2019]

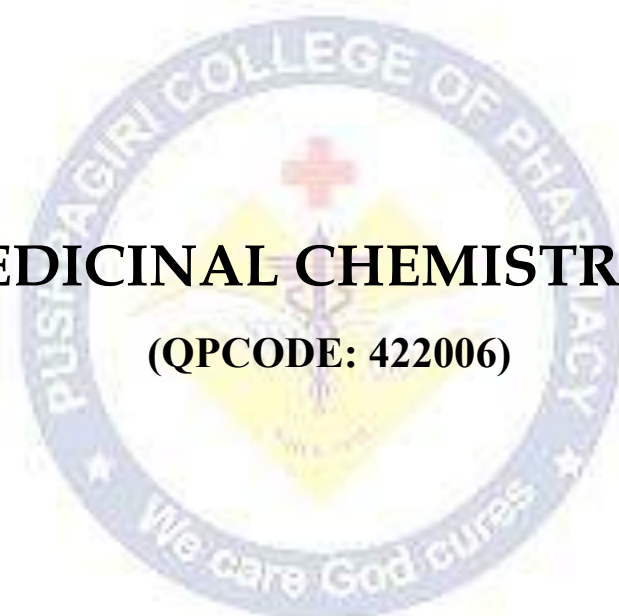
UNIT V

Reactions of Synthetic Importance

1. Discuss the reaction, mechanism and applications of Birch reduction and Claisen-Schmidt rearrangement. (10 marks) [July 2023]
2. Importance of metal hydride reduction. (02 marks) [July 2023]
3. Define Clemmensen reduction. (02 marks) [July 2023]
4. Discuss the reaction, mechanism and applications of Clemmensen reduction and Beckmanns rearrangement. (10 marks) [March 2023]
5. Explain Birch reduction. (05 marks) [March 2023]
6. Define Dakin reaction. (02 marks) [March 2023]
7. Mention any two synthetic reagents used for reduction reactions with chemical structure (02 marks) [March 2023]
8. Mention the synthetic importance of lithium aluminium hydride. (02 marks) [Nov 2022]
9. Discuss the reaction, mechanism and applications of Oppenauer oxidation and Wolff Kishner reduction. (10 marks) [June 2022]
10. Explain metal hydride reduction reactions and their synthetic importance. (05 marks) [June 2022]
11. Explain the synthetic applications of Claisen – Schmidt condensation. (02 marks) [June 2022]
12. Explain the synthetic importance of Dakin reaction. (02 marks) [June 2022]
13. Discuss the reaction, mechanism and applications of metal hydride reduction. (05 marks) [Dec 2021]
14. Importance of oppenauer oxidation. (02 marks) [Dec 2021]
15. Discuss the reaction, mechanism and applications of Beckmanns rearrangement and Birch reduction. (10 marks) [April 2021]
16. Explain the synthetic importance of Clemmensen reduction. (02 marks) [April 2021]
17. Dakin's reaction. (02 marks) [April 2021]
18. Explain the mechanism involved in Claisen Schmidt condensation. (05 marks) [Dec 2019]
19. Wolff Kishner reduction. (05 marks) [Dec 2019]
20. Darkin reaction (02 marks) [Dec 2019]
21. Birch reduction. (02 marks) [Dec 2019]
22. Mention the importance of Clemmensen reduction. (02 marks) [Dec 2019]
23. Discuss the reaction, mechanism and applications of Clemmensen reduction and metal hydride reduction. (10 marks) [July 2019]
24. Explain Schmidt rearrangement. (05 marks) [July 2019]
25. Write the synthetic importance of Dakin reaction (02 marks) [July 2019]

MEDICINAL CHEMISTRY - I

(QPCODE: 422006)



UNIT 1**Drug Metabolism**

1. Discuss in detail the optical & geometrical isomerism in drugs & their influence on biological action of drug molecules. (10 Marks) **(April 2023)**
2. Present a short survey on factors influencing solubility & ionization of drug molecules with suitable examples. (10 Marks) **(Dec 2022)**
3. Elaborate the following physicochemical properties in relation to biological activities with suitable examples;
 - i. . Hydrogen bonding
 - ii. . Geometrical isomerism. (10 Marks) **(Nov 2022)**
4. Explain the drug metabolism with examples. Outline the phase 1 metabolism with suitable examples. (10 Marks) **(March 2023)**
5. Write with examples the importance of;
 - a. Partition coefficient
 - b. Hydrogen bonding
 - c. Bioisosterism in relation to biological actions. (10 Marks) **(July 2023)**
6. Give an account on importance of hydrogen bonding in drug action. (05 Marks) **(Dec 2019)**
7. Explain about geometrical isomerism & its influence to the biological action. (05 Marks) **(July 2019)**
8. Write briefly about phase 1 metabolism of drugs with suitable examples. (05 Marks) **(July 2019)**
9. List the factors affecting drug metabolism. (05 Marks) **(April 2021) & (Nov 2022)**
10. Explain the biological significance of ionization & optical isomerism of drugs. (05 Marks) **(March 2023)**
11. Define bioisosterism & give one example. (02 Marks) **(July 2019)**
12. List out phase 1 metabolism of drugs. (02 Marks) **(April 2021)**
13. Significance of partition coefficient in medicinal chemistry. (02 Marks) **(April 2021)**
14. Factors affecting drug metabolism. (02 Marks) **(Dec 2021) & (Mach 2023)**
15. Bio-isosterism. (02 Marks) **(Dec 2021) & (Nov 2022)**
16. With examples, explain any one phase 2 metabolic reaction (02 Marks) **(July 2023)**

UNIT II**Drugs Acting on Ans**

1. Summarize the structural activity relationship of sympathomimetics agents with suitable illustrations. (10 Marks) **(July 2019)**
2. Discuss in detail the synthesis & medicinal uses of any 2 adrenergic agonists. (10 Marks) **(Dec 2021)**
3. Define & classify symptomimetic agents with structural examples. Outline the chemical synthesis & mechanism of action of salbutamol & tolazoline. (10 Marks) **(July 2023)**

4. Explain the mechanism of action & use of ephedrine. (05 Marks) **(July 2019)**
5. Draw the structure & uses of phenylephrine. (05 Marks) **(July 2019)**
6. SAR of adrenergic agonists. (05 Marks) **(Dec 2019) & (April 2021)**
7. Give the structure of following; Prazosin, atenolol, methyldopa (05 Marks) **(April 2021)**
8. Write the synthesis, mechanism of action & uses of tolazoline. (05 Marks) **(June 2022)**
9. Draw the structure & uses of terbutaline. (05 Marks) **(June 2022)**
10. Explain the SAR of sympathomimetic drugs. (05 Marks) **(March 2023)**
11. Mention any 2 alpha adrenergic blockers & its uses. (02 Marks) **(July 2019)**
12. Write the mechanism of action of beta adrenergic blockers. (02 Marks) **(Dec 2019)**
13. Mechanism of action & uses of salbutamol. (02 Marks) **(Dec 2019)**
14. Relate any 2 beta adrenergic agonists & antagonists. (02 Marks) **(Nov 2022)**
15. Mechanism of action of alpha adrenergic blockers. (02 Marks) **(April 2021)**
16. Write the structure & uses of clonidine. (02 Marks) **(June 2022)**
17. What are adrenergic antagonists. (02 Marks) **(March 2023)**
18. List any 2 important structural requirements for sympathomimetic drugs. (02 Marks) **(July 2023)**

UNIT III

Cholinergic Neurotransmitters

1. Classify parasympathomimetic agents with examples. Give the chemical structures of any two agents from each class. Write the synthesis & mechanism of action of dicyclomine hydrochloride. (10 Marks) **(July 2019)**
2. Discuss in detail cholinesterase inhibitors. Add a note on cholinesterase reactivators. (10 Marks) **(Dec 2019)**
3. Summarize the biosynthesis of acetylcholine. (05 Marks) **(July 2019)**
4. Cholinesterase inhibitors. (05 Marks) **(June 2022)**
5. Give the structure of ethopropazine. (05 Marks) **(Dec 2019)**
6. Explain the SAR of parasympathomimetic drugs. (05 Marks) **(July 2019)**
7. Give the synthesis, mechanism of action & uses of procyclidine hydrochloride. (05 Marks) **(July 2023)**
8. Briefly discuss cholinesterase reactivators. (05 Marks) **(June 2022)**
9. Discuss the distribution of cholinergic receptors. (05 Marks) **(March 2023)**
10. Outline the biosynthesis of acetylcholine & cholinergic receptors distribution. (05 Marks) **(March 2023)**
11. Explain the mechanism of action & uses of neostigmine. (05 Marks) **(March 2023)**
12. List any two important structural requirements of cholinergic blocking drugs. (02 Marks) **(March 2023)**
13. Outline the mechanism of action of cholinesterase inhibitors. (02 Marks) **(Dec 2019)**
14. Mention any four cholinergic blocking agents. (02 Marks) **(July 2019)**
15. Mention any two cholinergic agonists & their structures. (02 Marks) **(June 2022)**
16. SAR of cholinergic drugs. (02 Marks) **(March 2023)**
17. What are cholinesterase reactivators. (02 Marks) **(Dec 2019)**

18. Give a brief note on cholinesterase inhibitors. (02 Marks) (**March 2023**)
19. Synthesis of procyclidine. (02 Marks) (**July 2019**)
20. Draw the structure and uses of neostigmine. (02 Marks) (**Dec 2019**)
21. Synthesis of carbachol. (02 Marks) (**June 2022**)
22. Give the structure of any 2 cholinergic blockers. (02 Marks) (**Dec 2019**)

UNIT IV

Sedative, Hypnotics, Antipsychotics & Anticonvulsants

1. Discuss the mechanism of action, synthesis of any one compound & SAR of benzodiazepines. (10 Marks) (**July 2019**)
2. Discuss the SAR of benzodiazepines. Give the synthesis of diazepam. (10 Marks) (**Dec 2019**)
3. Discuss SAR of phenothiazines & write the synthesis of chlorpromazine hydrochloride. (10 Marks) (**Nov 2022**)
4. Write the synthesis & mechanism of action of carbamazepine. (05 Marks) (**July 2019**)
5. Draw the structure & uses of the following;
Oxazepam, triflupromazine, valproic acid, Phenylephrine, phensuximide. (05 Marks) (**July 2019**)
6. Give the synthetic pathway to synthesize chlorpromazine. Enumerate its therapeutic uses. (05 Marks) (**Dec 2019**)
7. Give the synthesis of phenytoin. Write its mechanism of action & pharmacological uses. (05 Marks) (**Dec 2019**)
8. Outline the synthesis of diazepam. (05 Marks) (**April 2021**) & (**Dec 2021**)
9. Give an account of SAR of benzodiazepine class of sedative & hypnotics. (05 Marks) (**April 2021**)
10. Elaborate the synthesis of a drug that fails under hydantoin class which is used as anticonvulsant. (05 Marks) (**April 2021**)
11. Give an account of SAR of phenothiazines as anticonvulsant. (**Dec 2021**)
12. Give the chemical structure & uses of phenobarbitone, paraldehyde, diclofenac, pentazocine, ketamine. (05 Marks) (**Dec 2021**)
13. Discuss the SAR of phenothiazines with suitable examples. (05 Marks) (**June 2022**)
14. Classify antipsychotic drugs & write mechanism of action of phenytoin & risperidone. (05 Marks) (**Nov 2022**)
15. Draw the structure & uses of naphazoline, haloperidol, pentobarbital, promazine, trimethadione. (05 Marks) (**Nov 2022**)
16. Classify antipsychotics with structural examples. (05 Marks) (**July 2023**) & (**March 2023**)
17. Classify sedatives & hypnotics with structural examples. (05 Marks) (**July 2023**)
18. Define antipsychotics & give 2 examples. (02 Marks) (**July 2019**)
19. Write the structure, mechanism & uses of haloperidol. (02 Marks) (**July 2019**)

20. Draw 2 structures of barbiturates. (02 Marks) **(July 2019)**
21. Mechanism of action & uses of valproic acid. (02 Marks) **(Dec 2021) & (Nov 2022)**
22. Structure & uses of chlorpromazine. (02 Marks) **(Dec 2022) & (July 2023) & (June 2022)**
23. Classify the anticonvulsants. (02 Marks) **(July 2023)**
24. Classify antipsychotic drugs. (02 Marks) **(June 2022)**
25. Synthesis of phenytoin. (02 Marks) **(June 2022)**
26. Define hypnotics & sedatives & give 2 example. (02 Marks) **(Nov 2022)**
27. Synthesis of ethusuximide. (02 Marks) **(Nov 2022)**
28. Draw 2 structures of benzodiazepines. (02 Marks) **(Nov 2022)**
29. Enlist the barbiturate class of sedatives & hypnotics along with their structure. (02 Marks) **(March 2023)**
30. Write the chemical structure & uses of ethosuximide. (02 Marks) **(March 2023)**
31. List important structural requirements for phenothiazine class of antipsychotic drugs. (02 Marks) **(March 2023)**
32. List any 2 important SAR of barbiturates. (02 Marks) **(July 2023)**

UNIT V

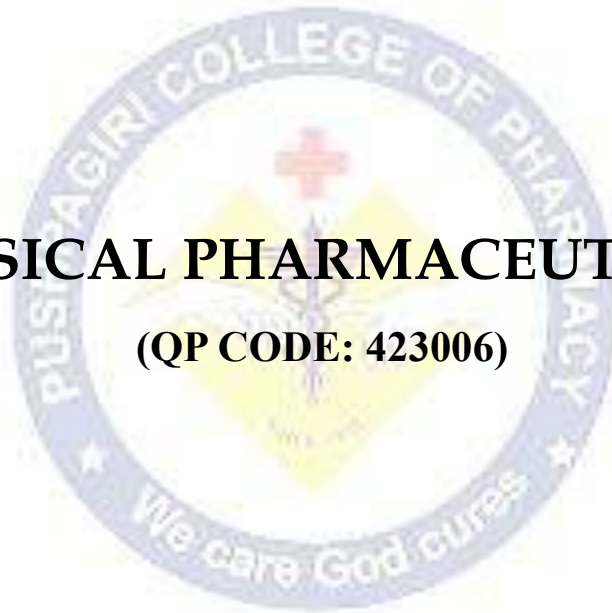
Drugs Acting on CNS

1. Give a note on narcotic analgesics. (05 Marks) **(July 2023)**
2. Give the structure and uses of halothane and aspirin. (05 Marks) **(July 2023)**
3. Explain the mechanism of action of inhalational anaesthetics. (02 Marks) **(July 2023)**
4. Enlist the narcotic antagonist along with their structures. (02 Marks) **(July 2023)**
5. Outline the chemical synthesis of Ibuprofen. (02 Marks) **(July 2023)**
6. Outline the chemical synthesis and mechanism of action of ketamine hydrochloride. (02 Marks) **(July 2023)**
7. Classify anti-inflammatory drugs with structural examples. (05 Marks) **(March 2023)**
8. Give this structure and uses of acetaminophen. (05 Marks) **(March 2023)**
9. Classify Anti-inflammatory agents. Write the synthesis and mechanism of action of mefenamic acid. (10 Marks) **(June 2022)**
10. Give the synthesis of methohexital sodium and fentanyl citrate. (05 Marks) **(June 2022)**
11. Narcotic antagonist. (05 Marks) **(June 2022)**
12. Draw the structure and uses of ibuprofen. (05 Marks) **(June 2022)**
13. Write the mechanism of action and synthesis of mefenamic acid. (05 Marks) **(Nov 2022)**
14. Outline the structural activity relationship of morphine analogous. (05 Marks) **(Nov 2022)**
15. Draw any two structures of inhalation anaesthetics. (02 Marks) **(June 2022)**
16. Relate any four cyclo-oxygenase inhibitors. (02 Marks) **(June 2022)**
17. Classify the general anaesthetics. (02 Marks) **(Nov 2022)**
18. Mechanism of action and structure of indomethacin. (02 Marks) **(Nov 2022)**

19. Write the two structures of narcotic analgesic agents. (02 Marks) (**Nov 2022**)
20. Differentiate narcotic and non-narcotic analgesic with examples. (02 Marks) (**Dec 2021**)
21. Give the structure and uses of naloxone hydrochloride. (02 Marks) (**Dec2021**)
22. Mechanism of action of anti-inflammatory agents. (02 Marks) (**Dec 2021**)
23. Dissociative analgesics. (02 Marks) (**April 2021**)
24. Narcotic antagonist. (02 Marks) (**April 2021**)
25. Synthesis of halothane. (02 Marks) (**April 2021**)
26. Get structure and uses of piroxicam. (02 Marks) (**April 2021**)
27. Explain in detail the chemistry of 2 anti-inflammatory agents. (05 Marks) (**April 2021**)
28. Give the chemical structure and uses of diclofenac and ketamine. (05 Marks) (**Dec 2021**)
29. Draw the structure of ketamine hydrochloride and its uses. (02 Marks) (**July 2019**)
30. Write any two structures of aryl propionic acid derivative of anti-inflammatory and analgesic agents.
(02 Marks) (**July 2019**)
31. Mechanism of action and uses of aspirin. (02 Marks) (**July 2019**)
32. Give the structure and uses of codeine. (02 Marks) (**Dec 2019**)
33. Draw the structure of piroxicam. (02 Marks) (**Dec 2019**)
34. Classify anti-inflammatory agents with examples. (02 Marks) (**Dec 2019**)
35. Structure and uses of acetaminophen. (02 Marks) (**Dec 2019**)
36. Summarise the structural activity relationship of morphine analogous. (05 Marks) (**July 2019**)
37. Explain the mechanism of action and use of pyroxicam. (05 Marks) (**July 2019**)

PHYSICAL PHARMACEUTICS II

(QP CODE: 423006)



UNIT I**Drug Stability**

1. What is the influence of temperature on drug degradation. (02 mark) **(July 2023)**
2. Differentiate order and molecularity of reaction. (02 mark) **(July 2023)**
3. What is oxidation and explain its method of prevention. (02 mark) **(march 2023)**
4. Derive an equation for second order reaction kinetics. (05 mark) **(march 2023)**
5. Define half-life. (02 mark) **(march 2023)**
6. Define zero order reaction with examples. (02 mark) **(march 2023)**
7. Define order of reaction. Derive an equation for rate and half-life for zero and first order reaction. (10 mark) **(Nov 2022)**
8. Protection of drugs against oxidation. (05 mark) **(Nov 2022)**
9. Arrhenius equation. (02 mark) **(Nov 2022)**
10. Apparent zero order reaction. (02 mark) **(Nov 2022)**
11. What is hydrolysis. Explain how hydrolysis causes degradation of a drug and elaborate on method to prevent it. (10 mark) **(June 2022)**
12. Derive an expression for rate constant of second order reaction. (05 mark) **(June 2022)**
13. Define shelf life. (02 mark) **(June 2022)**
14. Define pseudo first order reaction.(02 mark) **(June 2022)**
15. Explain with graph and equations the influence of temperature on degradation of pharmaceutical dosage form. How do you assess the shelf life of a product. (10 mark) **(Dec 2021)**
16. How are medicinal agents stabilized against oxidation in dosage forms. (05 mark) **(Dec 2021)**
17. What are pseudo first order reactions. (02 mark) **(Dec 2021)**
18. Write two approaches to stabilize medicinal agents against hydrolysis. (02 mark) **(Dec 2021)**
19. What are the different methods for determination of order of a reaction. Derive an equation to prove that half-life in first order reaction is independent of initial concentration of a reactant. (10 mark) **(April 2021)**
20. Antioxidants in pharmaceutical formulations. (05 mark) **(April 2021)**
21. Accelerated stability testing. (05 mark) **(Dec 2019)**
22. Explain the methods to determine order of reaction. (05 mark) **(Dec 2019)**
23. Define half life. (02 mark) **(Dec 2019)**
24. Define zero order reaction with example. (02 mark)**(Dec 2019)**
25. What is meant by order of a reaction. Explain the methods to determine order of a reaction. (10 mark) **(Jul 2019)**
26. Accelerated stability testing. (05 mark) **(July 2019)**
27. Define shelf life. (02 mark) **(July 2019)**
28. How to protect the drugs from photolytic degradation. (02 mark) **(July 2019)**

UNIT II**Rheology & Deformation of Solids**

1. Explain different non-Newtonian systems with graphs, mechanisms and suitable examples. (10 mark)
(July 2023)
2. What is plug flow. (02 mark) **(July 2023)**
3. Mentions the factors affecting viscosity. (02 mark) **(July 2023)**
4. Illustrate Ostwald viscometer with its working. (05 mark) (**march 2023**)
5. Define stress and strain. (02 mark) (**march 2023**)
6. What is rheopexy. (02 mark) (**march 2023**)
7. Define plastic and elastic deformation. (02 mark) (**march 2023**)
8. Discuss pseudo plastic flow behaviour. (05 mark) (**Nov 2022**)
9. Give the working principle of cup and bob viscometer with a labeled diagram. (05 mark) (**Nov 2022**)
10. Plastic deformation. (02 mark) (**Nov 2022**)
11. Thixotropy. (02 mark) (**Nov 2022**)
12. Define rheology. Explain Non Newtonian type of flow with rheograms, mechanisms and suitable examples. (10 mark) **(June 2022)**
13. Define kinematic and relative viscosity. (02 mark) **(June 2022)**
14. Differentiate single and multipoint viscometers. Explain the working principle of two rotational viscometers with examples. (10 mark) **(Dec 2021)**
15. What are Newtonian systems. (05 mark) **(Dec 2021)**
16. Describe dilatant non Newtonian flow with examples and rheograms. (05 mark) **(Dec 2021)**
17. Define yield value. (02 mark) **(Dec 2021)**
18. What are elastic and plastic deformations of solids under the influence of stress. (02 mark) **(Dec 2021)**
19. What is thixotropy. How is thixotropy measured. What is its significance in pharmaceutical formulations. (10 mark) **(April 2021)**
20. State and explain Heckel equation for deformation of solids. (05 mark) **(April 2021)**
21. Explain the influence of temperature on viscosity of liquid.(02 mark) **(April 2021)**
22. What are shearing stress and rate of shear. (02 mark) **(April 2021)**
23. What is a pseudo plastic system. (02 mark) **(April 2021)**
24. Plug flow. (02 mark) **(April 2021)**
25. Define viscosity. Explain thixotropy with rheogram. How will you determine flow properties using Ostwald viscometer. (05 mark) **(Dec 2019)**
26. What is dilatant flow. Give example. (02 mark) **(Dec 2019)**
27. Elastic deformation. (02 mark) **(Dec 2019)**
28. Explain different Non Newtonian flows with mechanisms, rheograms and examples. (10 mark) **(July 2019)**
29. What is plug flow. What it is due to. How to overcome plug flow. (05 mark) **(July 2019)**

30. What is kinematic viscosity. (02 mark) (**July 2019**)

31. What are Newtonian systems. (02 mark) (**July 2019**)

UNIT III

Coarse Dispersion

1. Differentiate flocculated and deflocculated suspensions. (05 mark) (**July 2023**)

2. Explain the evaluation parameters for suspension.(05 mark) (**July 2023**)

3. What is sedimentation volume. (02 mark) (**July 2023**)

4. Identification tests for emulsion. (02 mark) (**July 2023**)

5. What is Brownian movement. (02 mark) (**July 2023**)

6. Explain the various theories of emulsification. (10 mark) (**march 2023**)

7. Explain different methods of evaluation of stability of emulsions. (05 mark) (**march 2023**)

8. Stability problems of emulsion. (05 mark) (**march 2023**)

9. Why emulsions are thermodynamically unstable. (02 mark) (**march 2023**)

10. What are deflocculated suspensions. (02 mark) (**march 2023**)

11. Explain flocculated and deflocculated suspensions. (05 mark)(**Nov 2022**)

12. Rheology in Emulsions, Suspensions. (05 mark) (**Nov 2022**)

13. Phase inversion. (02 mark) (**Nov 2022**)

14. Stokes law. (02 mark) (**Nov 2022**)

15. Multiple emulsions. (02 mark) (**Nov 2022**)

16. Explain stability problems of emulsion. (05 mark) (**June 2022**)

17. Explain factors influencing settling of particles in suspension. (05 mark) (**June 2022**)

18. Factors to be considered in the preservation of emulsions.(05 mark) (**June 2022**)

19. Micro emulsions . (02 mark) (**June 2022**)

20. Define breaking of emulsion. (02 mark) (**June 2022**)

21. Sedimentation volume. (02 mark) (**June 2022**)

22. Explain physical stability of emulsion. (05 mark) (**Dec 2021**)

23. Define degree of flocculation. (02 mark) (**Dec 2021**)

24. Preservation in emulsion. (02 mark) (**Dec 2021**)

25. Explain theories of emulsification. (05 mark) (**April 2021**)

26. Name two natural and synthetic suspending agents. (02 mark) (**April 2021**)

27. What are the causes for creaming in an emulsion. (02 mark) (**April 2021**)

28. Explain the Stokes equation for settling of particles in suspension. (02 mark)(**April 2021**)

29. Define emulsion. Classify them and explain theories of emulsification with a neat diagram.(10 mark)
(**Dec 2019**)

30. Explain role of zeta potential in formulation of suspensions. (05 mark) (**Dec 2019**)

31. Brownian movement. (02 mark) **(Dec 2019)**
32. Define creaming of emulsion . (02 mark) **(Dec 2019)**
33. What are structured vehicles. (02 mark) **(Dec 2019)**
34. Explain settling in suspension. (05 mark) **(July 2019)**
35. How to achieve controlled flocculation in a suspension. (02 mark) **(July 2019)**

UNIT IV

Surface and Interfacial Phenomenon

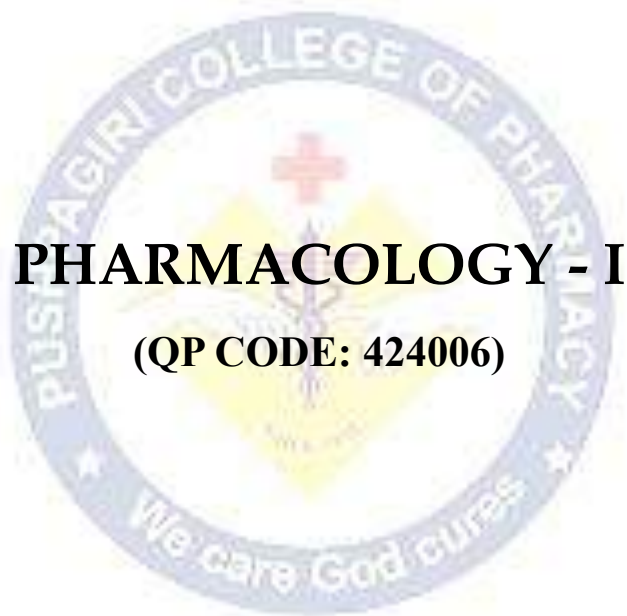
1. What are different methods of determination of surface tension. Explain any two methods in detail. (10 mark) **(July 2023)**
2. Classify surfactants with examples. (05 mark) **(July 2023)**
3. Write a note on spreading co-efficient. (05 mark) **(July 2023)**
4. Role of wetting agents. (02 mark) **(July 2023)**
5. Differentiate surface and interfacial tension. (02 mark) **(July 2023)**
6. What are surfactants. Classify them with suitable examples. (05 mark) **(march 2023)**
7. What is physical adsorption. (02 mark) **(march 2023)**
8. Define Critical Micelle Concentration. (02 mark) **(march 2023)**
9. State and explain Langmuir adsorption isotherm. (05 mark) **(Nov 2022)**
10. Derive an equation for spreading coefficient. What is its significance. (05 mark) **(Nov 2022)**
11. Name two instruments used to measure surface tension. (02 mark) **(Nov 2022)**
12. Write the application of HLB. (02 mark) **(Nov 2022)**
13. Describe the mechanisms of action of wetting agents. (05 mark) **(June 2022)**
14. Classify surface active agents with examples and write its applications.(05 mark) **(June 2022)**
15. Explain the determination of interfacial tension using DuNouy method. (05 mark) **(June 2022)**
16. Define surface tension and mention the unit. (02 mark) **(June 2022)**
17. Define adsorption isotherm. (02 mark) **(June 2022)**
18. Describe Griffins HLB scale with examples. (05 mark) **(Dec 2021)**
19. Describe a method for determination of surface tension. (05 mark) **(Dec 2021)**
20. Spreading coefficient. (02 mark) **(Dec 2021)**
21. Give the Freundlich adsorption equation. (02 mark) **(Dec 2021)**
22. Write working principle of stalagmometer. (05 mark) **(April 2021)**
23. Classify surfactants with examples. (02 mark) **(April 2021)**
24. Freundlich equation for adsorption at solid interface. (02 mark) **(April 2021)**
25. Explain the determination of surface tension of liquids by capillary rise method. (05 mark) **(Dec 2019)**
26. Define surface free energy. (02 mark) **(Dec 2019)**
27. Explain with neat diagram the working principle of Du Nouy tensiometer. (05 mark) **(July 2019)**

28. Explain various adsorption isotherms. (05 mark) (**July 2019**)
29. What is surface free energy. (02 mark) (**July 2019**)
30. What is spreading coefficient. (02 mark) (**July 2019**)
31. What are detergents. (02 mark) (**July 2019**)
32. What is HLB scale. (02 mark) (**July 2019**)

UNIT V

Colloids

1. DLVO theory. (05 mark) (**July 2023**)
2. Zeta potential and its applications. (05 mark) (**July 2023**)
3. Discuss the applications of colloidal dispersions. (05 mark) (**July 2023**)
4. Name the methods of preparation of colloids. (02 mark) (**July 2023**)
5. Discuss the optical and kinetic properties of colloids. (10 mark) (**march 2023**)
6. Derive an equation for Donnan membrane equilibrium. (05 mark) (**march 2023**)
7. Define colloids, Give its types. Explain optical properties of colloids. (10 mark) (**Nov 2022**)
8. Gold number. (02 mark) (**Nov 2022**)
9. Explain electrical properties of colloids. (05 mark) (**June 2022**)
10. Gold number. (02 mark) (**June 2022**)
11. Explain optical properties of colloids. (05 mark) (**Dec 2021**)
12. What are Nernst and zeta potentials. (02 mark) (**Dec 2021**)
13. Define coacervation. (02 mark) (**Dec 2021**)
14. Briefly explain the classification of colloids. (05 mark) (**April 2021**)
15. Explain electrical properties of colloidal dispersion. (05 mark) (**April 2021**)
16. Define gold number. (02 mark) (**April 2021**)
17. Peptization in colloidal dispersions. (02 mark) (**April 2021**)
18. Explain the different methods for purification of colloids. (05 mark) (**Dec 2019**)
19. Association colloids. (05 mark) (**Dec 2019**)
20. Tyndall effect of colloids. (02 mark) (**Dec 2019**)
21. What are protective colloids. (02 mark) (**Dec 2019**)
22. Differentiate lyophilic, lyophobic and association colloids based on their general characteristics.(05 mark) (**July 2019**)
23. Peptization and protection of colloids -5 mark (**July 2019**)
24. Define gold number. (02 mark) (**July 2019**)



PHARMACOLOGY - I

(QP CODE: 424006)

CHAPTER 1

General Pharmacology

1. Discuss the various routes of drug administration. Write the advantages and disadvantages of oral route. (10 Marks) [**march 2023**]
2. Classify biotransformation reactions. (02 Marks) [**march 2023**]
3. Give two examples each for agonist and antagonist. (02 Marks) [**march 2023**]
4. Describe phase II reactions of drug metabolism with examples. (05 Marks) [**November 2022**]
5. Describe the signal transduction mechanisms of G-protein coupled receptors. (05 Marks) [**November 2022**]
6. What is idiosyncrasy. (02 Marks) [**November 2022**]
7. Define drug tolerance with an example. (02 Marks) [**November 2022**]
8. Define drug metabolism. Describe various metabolic reactions with examples. (10 Marks) [**July 2019**]
9. Describe various routes of excretion of drugs. (05 Marks) [**July 2019**]
10. Define enzyme induction with an example. (02 Marks) [**July 2019**]

CHAPTER 2

General Pharmacology

1. Explain the pharmacokinetic drug interaction. (05 Marks) [**march 2023**]
2. What are cholinesterase re-activators. (02 Marks) [**march 2023**]
3. Define mydriatics and miotics. (02 Marks) [**march 2023**]
4. Phases of clinical trials. (02 Marks) [**march 2023**]
5. Mention factors that modify drug action. (02 Marks) [**march 2023**]
6. Classify parasympatholytics with examples. Describe the pharmacological
7. Actions and mention the therapeutic uses of atropine. (10 Marks) [**November 2022**]
8. Describe the design of phase III clinical trials. (05 Marks) [**November 2022**]
9. Define teratogenicity with examples. (02 Marks) [**November 2022**]
10. Define median lethal dose. (02 Marks) [**November 2022**]
11. Describe dose-response curves. (05 Marks) [**July 2019**]
12. Explain pharmacokinetic drug interactions with examples. (05 Marks) [**July 2019**]
13. Give two examples of drugs acting on ligand gated ion channels. (02 Marks) [**July 2019**]
14. Name two teratogenic drugs. (02 Marks) [**July 2019**]

CHAPTER 3

Pharmacology of Peripheral Nervous System

1. Define glaucoma. Write note on drugs for glaucoma. (05 Marks) [**march 2023**]
2. List four therapeutic uses of β adrenergic blocking drugs. (02 Marks) [**march 2023**]
3. Define agonist and antagonist with one example. (02 Marks) [**November 2022**]

4. What is the rationale in combining adrenaline with lignocaine. (02 Marks) [**November 2022**]
5. Name two centrally acting muscle relaxants. (02 Marks) [**November 2022**]
6. Describe the mechanism of action and therapeutic uses of physostigmine. (05 Marks) [**July 2019**]
7. Mention the drugs used in the treatment of organophosphorus poisoning. (02 Marks) [**July 2019**]
8. Mention the therapeutic uses of skeletal muscle relaxants. (02 Marks) [**July 2019**]

CHAPTER 4

Pharmacology Of Central Nervous System

1. Classify anticholinesterases. Mention their uses. (05 Marks) [**march 2023**]
2. Classify general anesthetics and add a note on stages of anesthesia. (05 Marks) [**march 2023**]
3. Mechanism of action of benzodiazepine. (02 Marks) [**march 2023**]
4. Describe the neuro humoral transmission in the adrenergic nervous system. (05 Marks) [**November 2022**]
5. Describe gabaminergic transmission. (05 Marks) [**November 2022**]
6. What is the rationale for the use of disulfiram. (02 Marks) [**November 2022**]
7. Name two drugs useful in grandmal epilepsy. (02 Marks) [**November 2022**]
8. Classify sedatives and hypnotics with examples. Describe the pharmacology of any two different groups of sedatives and hypnotics. (10 Marks) [**July 2019**]
9. Describe the stages of general anesthesia. (05 Marks) [**July 2019**]
10. Name the inhibitory neurotransmitters in the central nervous system. (02 Marks) [**July 2019**]
11. What is the rationale in using atropine as pre-anesthetic medication. (02 Marks) [**July 2019**]
12. Mention the management of acute barbiturate poisoning. (02 Marks) [**July 2019**]

CHAPTER 5

Pharmacology of Central Nervous System

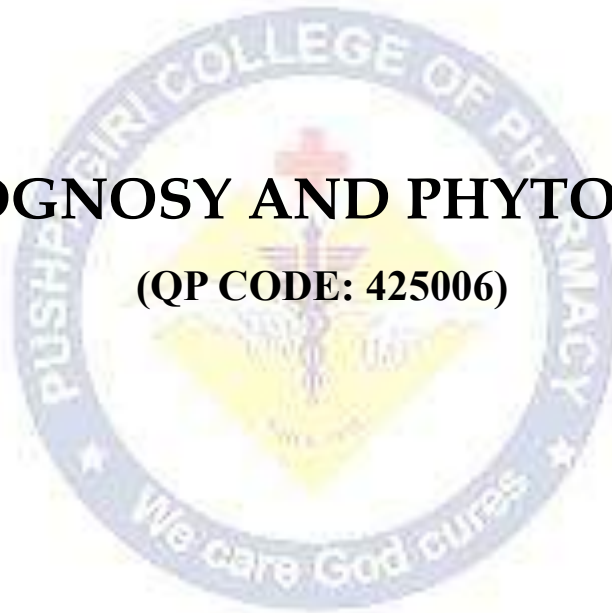
1. Define Parkinson's disease and classify anti- Parkinson's drugs. Explain the actions and adverse effects of Levodopa. (10 Marks) [**march 2023**]
2. Discuss the pharmacological actions of morphine. (05 Marks) [**march 2023**]
3. Write a note on MAO- B inhibitor. (05 Marks) [**march 2023**]
4. Explain the mechanism of action and adverse effects of tricyclic antidepressants. (05 Marks) [**march 2023**]
5. Name four anti-anxiety drugs. (02 Marks) [**march 2023**]
6. Differentiate between drug addiction and drug tolerance. (02 Marks) [**march 2023**]
7. Classify opioid analgesics with examples. Describe the mechanism of action and pharmacological actions of morphine. (10 Marks) [**November 2022**]
8. Mention various drugs used in Parkinson's disease and describe the pharmacology of any one of them. (05 Marks) [**November 2022**]

9. Mention the therapeutic uses and toxicities of imipramine. (02 Marks) [November 2022]
10. Describe the mechanism of action and pharmacological actions of any one group of antidepressants. (05 Marks) [July 2019]
11. Describe the pharmacology of any one drug useful in Alzheimer's disease. (05 Marks) [July 2019]
12. Name two opioid antagonists. (02 Marks) [July 2019]
13. Define drug dependence. (02 Marks) [July 2019]



PHARMACOGNOSY AND PHYTOCHEMISTRY- I

(QP CODE: 425006)



UNIT 1**Introduction to Pharmacognosy, Classification of Drugs, Quality Control Of Drugs**

1. Define pharmacognosy. Write the history, scope and development of pharmacognosy.(10 Marks)
[December 2019]
2. Explain in detail about the organoleptic and chemical methods of evaluation of crude drugs.(10 Marks)
[April 2021]
3. Enumerate the different methods of classification of crude drugs of natural origin.(10 Marks)
[November 2022]
4. Explain chemical and morphological systems of classification of crude drugs with examples, their advantages and disadvantages. (10 Marks) **[June 2022]**
5. Define adulteration. Discuss various types and methods of adulteration in crude drugs with suitable examples. (10 Marks) **[June 2022]**
6. Define evaluation of crude drugs. Explain microscopic evaluation of crude drugs with examples. (10 Marks) **[December 2021]**
7. Define evaluation. Explain the different methods of evaluation of crude drugs. (10 Marks) **[July 2019]**
8. Explain the morphological and chemical classification. (10 Marks) **[November 2022]**
9. Distinguish between organized and unorganized crude drugs. (05 Marks) **[July 2023]**
10. Differentiate organized crude drugs from unorganized crude drugs with examples. (05 Marks)
[December 2021]
11. Explain the physical evaluation of crude drugs. (05 Marks) **[November 2022]**
12. Lycopodium spore method. (05 Marks) **[November 2022]**
13. Write a short note on chemical and pharmacological classification of drugs. (05 Marks) **[March 2023]**
14. Explain in brief about physical methods of evaluation of crude drugs. (05 Marks) **[March 2023]**
15. Define adulteration and explain the different methods of adulteration of crude drugs with examples. (05 Marks) **[December 2019]**
16. Write the definition and scope of Pharmacognosy. (05 Marks) **[July 2019]**
17. Explain pharmacological system of classification of crude drugs. (05 Marks) **[December 2021]**
18. Scope of pharmacognosy. (05 Marks) **[June 2022]**
19. Explain lycopodium spore method to determine the purity of crude drugs. (05 Marks) **[June 2022]**
20. Explain taxonomical system of classification of crude drugs. (05 Marks) **[April 2021]**
21. Write note on dried latex with examples. (02 Marks) **[July 2023]**
22. Define stomatal index and stomatal number. (02 Marks) **[July 2023]**
23. Differences between primary and secondary metabolites. (02 Marks) **[July 2023]**
24. Define Pharmacognosy. (02 Marks) **[March 2023]**

25. Write a note on drug adulteration. (02 Marks) [**March 2023**]
26. Enlist the methods used to determine the leaf constant. (02 Marks) [**March 2023**]
27. Different sources of crude drugs. (02 Marks) [**November 2022**]
28. Merits and demerits of taxonomical classification of crude drugs. (02 Marks) [**November 2022**]
29. Differentiate organized and unorganized crude drug. (02 Marks) [**December 2019**]
30. Merits and demerits of pharmacological classification of crude drugs. (02 Marks) [**July 2019**]
31. Define adulteration and substitution. (02 Marks) [**July 2019**]
32. Define crude drugs with examples. (02 Marks) [**April 2021**]
33. Define adulteration. (02 Marks) [**December 2021**]
34. Define pharmacognosy. (02 Marks) [**June 2022**]
35. Define stomatal number and vein islet number. (02 Marks) [**December 2019**]
36. What is Stomatal Index. (02 Marks) [**June 2022**]

UNIT II

Cultivation, Collection, Processing and Storage of Drugs, Conservation of Medicinal Plants

1. Explain in brief conservation of medicinal plants and its importance's. (10 Marks) [**December 2019**]
2. Explain the various steps and parameters involved in processing and storage of crude drugs quoting examples. (10 Marks) [**December 2021**]
3. Explain in detail about cultivation, collection, processing and storage of drugs of natural origin. (10 Marks) [**March 2023**]
4. Discuss the general aspects of cultivation and collection of medicinal plants. (10 Marks) [**July 2023**]
5. Explain the different methods of cultivation of crude drugs. (05 Marks) [December 2019]
6. Discuss about ex situ conservation of medicinal plants. (05 Marks) [**July 2023**]
7. Plant hormones and its applications. (05 Marks) [**November 2022**]
8. Discuss plant hormones with their applications in pharmacognosy. (05 Marks) [**December 2021**]
9. Explain vegetative method of propagation of medicinal plants. (05 Marks) [**December 2021**]
10. Define polyploidy. (02 Marks) [**March 2023**]
11. Define in situ conservation of medicinal plants. (02 Marks) [**March 2023**]
12. Define and write a note on functions of cytokinin. (02 Marks) [**March 2023**]
13. Name any two plant hormones and its applications. (02 Marks) [**December 2019**]
14. Enumerate the merits and demerits of cultivation. (02 Marks) [**December 2019**]
15. Different methods of drying of crude drugs. (02 Marks) [**July 2019**]
16. Define soil and soil fertility. (02 Marks) [**July 2019**]
17. Define garbling. (02 Marks) [**April 2021**]
18. Define grafting. (02 Marks) [**April 2021**]

19. What are plant growth regulators. Give Examples. (02 Marks) [April 2021]
20. What are the methods to collect bark drugs. (02 Marks) [April 2021]
21. Define mutation. (02 Marks) [April 2021]
22. Name the various factors that affect cultivation of medicinal plants. (02 Marks) [December 2021]
23. Shapes of bark drugs. (02 Marks) [December 2021]
24. Methods of seed propagation. (02 Marks) [June 2022]
25. Define hybridization. (02 Marks) [June 2022]

UNIT III

Plant Tissue Culture

1. What is plant tissue culture. Mention the types of cultures. Write a note on historical development and application in Pharmacognosy. (10 Marks) [July 2019]
2. Define plant tissue culture and explain in detail about types of culture, nutritional requirements for growth and their maintenance. (10 Marks) [March 2023]
3. Applications of plant tissue culture in Pharmacognosy. (05 Marks) [July 2023]
4. Write the applications of plant tissue culture in pharmacognosy. (05 Marks) [April 2021]
5. Define and classify plant hormones. (05 Marks) [July 2019]
6. Explain the various phases of growth in plant tissue culture. (05 Marks) [June 2022]
7. Discuss the various nutritional requirements in plant tissue culture. (05 Marks) [December 2021]
8. Write applications of plant tissue culture in pharmacognosy. (05 Marks) [December 2019]
9. What are explants. (02 Marks) [July 2019]
10. Define and classify plant tissue culture. (02 Marks) [December 2019]
11. What is explant. (02 Marks) [December 2021]

UNIT IV

Pharmacognosy in Various System of Medicine, Introduction to Secondary Metabolites

1. Write the definition, classification, properties and general chemical tests for the identification of alkaloids. (10 Marks) [November 2022]
2. Discuss briefly the role of Pharmacognosy in Ayurveda, Siddha, Unani and Chinese systems of medicine. (10 Marks) [July 2023]
3. Define and classify Volatile oils. (05 Marks) [July 2023]
4. Write the identification tests for flavonoids and tannins. (05 Marks) [March 2023]
5. Write a short note on principle of Chinese system of medicine. (05 Marks) [March 2023]
6. Write the role of pharmacognosy in ayurvedic system of medicine. (05 Marks) [December 2019]
7. Define and classify alkaloids with suitable examples. (05 Marks) [December 2019]
8. Write the principle involved in the Homeopathy system of medicine. (05 Marks) [July 2019]

9. Define and classify resins with suitable examples. (05 Marks) **[July 2019]**
10. Classify tannins with examples. (05 Marks) **[April 2021]**
11. Discuss the role of pharmacognosy in ayurvedic system of medicine. (05 Marks) **[April 2021]**
12. Define alkaloids and give the general chemical tests for alkaloids. (05 Marks) **[December 2021]**
13. Classify glycosides with examples. (05 Marks) **[June 2022]**
14. Write the general test for identification of alkaloids. (02 Marks) **[April 2021]**
15. What are volatile oils. Give examples. (02 Marks) **[April 2021]**
16. Write the chemical tests for flavonoids. (02 Marks) **[June 2022]**
17. Define glycosides. (02 Marks) **[June 2022]**
18. Chemical test for the identification of O glycosides. (02 Marks) **[November 2022]**
19. Chemical tests for flavonoids. (02 Marks) **[July 2023]**
20. Define glycosides with examples. (02 Marks) **[March 2023]**
21. Role of pharmacognosy in Siddha system of medicine. (02 Marks) **[March 2023]**
22. Gold beater skin. (02 Marks) **[December 2019]**
23. Chemical test for the identification of flavonoid. -(02 Marks) **[July 2019]**

UNIT V

Plant Products, Primary Metabolites, Marine Drugs

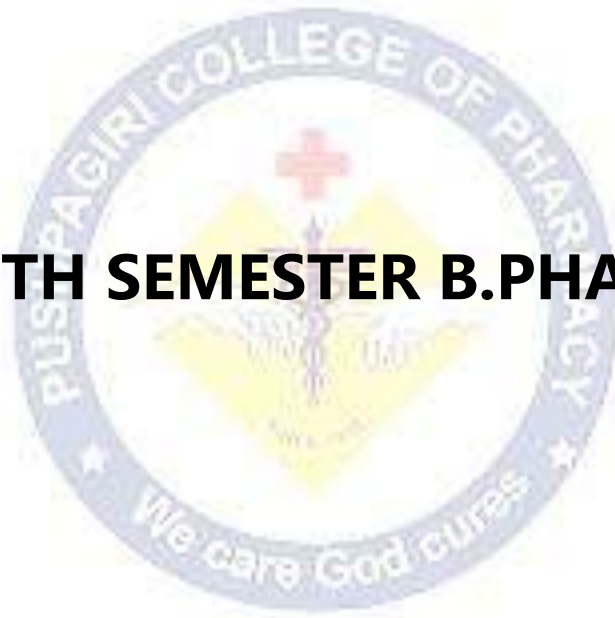
1. Define lipids. Write a note on source, method of production, constituents, tests and uses of castor oil. (10 Marks) **[April 2021]**
2. Discuss on source and method of collection of wool fat. (05 Marks) **[April 2021]**
3. Honey. (05 Marks) **[December 2021]**
4. Write the pharmacognosy of cotton. (05 Marks) **[December 2019]**
5. Write the chemical tests for the identification of acacia. (05 Marks) **[December 2019]**
6. Describe the biological source, preparation, chemical constituents and uses of wool fat. (05 Marks) **[July 2019]**
7. What are hallucinogens? Add a note on cannabis as a hallucinogen. (05 Marks) **[June 2022]**
8. Write the source, method of collection and constituents of tragacanth. (05 Marks) **[June 2022]**
9. Write short note on Cotton. (05 Marks) **[July 2019]**
10. Fiehe's test. (05 Marks) **[November 2022]**
11. Describe the biological source, chemical constituents and uses of cannabis and colchicum. (05 Marks) **[November 2022]**
12. Explain about biological source, chemical constituents and uses of Veratrum and tobacco. (05 Marks) **[March 2023]**
13. Write the source, chemical constituents, chemical tests and uses of gelatin. (05 Marks) **[March 2023]**

14. Discuss marine drugs as a source of cardiovascular agents with example. (05 Marks) **[March 2023]**
15. Plant allergens. (05 Marks) **[July 2019]**
16. Write the source and method of preparation of castor oil. (05 Marks) **[November 2022]**
17. Discuss marine drugs as a source of antivirals with examples. (05 Marks) **[June 2022]**
18. Preparation and standardization of allergenic extracts(05 Marks) **[April 2021]**
19. Method of preparation and constituents of cotton. (05 Marks) **[April 2021]**
20. What are teratogens, give the source, constituents and uses of Colchicum. (05 Marks) **[July 2023]**
21. Cardiovascular agents of marine source. (05 Marks) **[July 2023]**
22. Source and uses of Streptokinase and Urokinase. (05 Marks) **[July 2023]**
23. Mention the source and uses of bromelain. (02 Marks) **[April 2021]**
24. Differentiate acacia from agar by chemical test. (02 Marks) **[April 2021]**
25. Chemical test for acacia.(02 Marks) **[December 2021]**
26. Write the biological source, chemical constituents and uses of cannabis. (02 Marks) **[December 2021]**
27. Describe the biological source and uses of honey. (02 Marks) **[July 2019]**
28. Different sources of starch. (02 Marks) **[July 2019]**
29. Describe the source and therapeutic uses of urokinase. (02 Marks) **[July 2019]**
30. Name any four antimicrobial drugs from marine source. (02 Marks) **[July 2019]**
31. Mention the source, constituents and uses of chaulmoogra oil. (02 Marks) **[December 2021]**
32. Give the sources of pepsin and casein. (02 Marks) **[December 2021]**
33. What are primary metabolites. Give examples. (02 Marks) **[December 2021]**
34. Mention the source, active constituents and uses of gelatin. (02 Marks) **[June 2022]**
35. Give the source, family and constituents of a plant fibre. (02 Marks) **[June 2022]**
36. What are the usual adulterants of honey and how it is tested. (02 Marks) **[June 2022]**
37. Confirmatory test for castor oil. (02 Marks) **[June 2022]**
38. Define teratogens with examples. (02 Marks) **[December 2021]**
39. Biological source and uses of jute. (02 Marks) **[November 2022]**
40. Source and therapeutic uses of Chaulmoogra oil. (02 Marks) **[November 2022]**
41. Name any four anticancer drugs from marine source. (02 Marks) **[November 2022]**
42. Preparation of Bees wax. (02 Marks) **[July 2023]**
43. Write the biological source constituents and uses of Hemp. (02 Marks) **[July 2023]**
44. Give the source, constituents and uses of agar. (02 Marks) **[July 2023]**
45. Source and uses of an enzyme from animal source. (02 Marks) **[July 2023]**
46. Source, constituents and uses of castor oil. (02 Marks) **[July 2023]**
47. Write a brief note on source and therapeutic uses of castor oil. (02 Marks) **[March 2023]**

48. Write a brief note on source and therapeutic uses of papain. (02 Marks) [March 2023]
49. Biological source and chemical constituents of tobacco. (02 Marks) [December 2019]
50. Method of preparation of agar. (02 Marks) [December 2019]
51. Source and pharmaceutical uses of bee's wax. (02 Marks) [December 2019]
52. Name any four antiviral drugs from marine source. (02 Marks) [December 2019]



FIFTH SEMESTER B.PHARM





MEDICINAL CHEMISTRY-II
(QP CODE: 105326)

UNIT I**Antihistaminic Agents**

1. Mechanism of action and uses of cimetidine. (02 marks) [Sept. 2023]
2. Describe about histamine receptors and their distribution. (05 marks) [May 2023]
3. Give the structure and uses of cimetidine and mercaptopurine. (02 marks) [May 2023]
4. Define and classify antihistaminics with examples. Discuss the chemistry, synthesis and uses of Diphenhydramine. (10 marks) [July 2022]
5. What are H₂ antagonists. Give examples. (02 marks) [July 2022]
6. Mechanism of action of H₂ receptor antagonist. Write the synthesis and use of any one. (05 marks) [Nov 2021]
7. Brief out on first generation H₁ receptor antagonist with examples. (02 marks) [Nov. 2021]
8. Outline the synthesis of triprolidine. (02 marks) [Nov. 2021]
9. Histamine receptors and their distribution in human body. Mention the uses of histamine antagonist. (05 marks) [Jan. 2021]
10. Outline the synthesis of cimetidine. (02 marks) [Jan. 2021]
11. Give the structure and uses of diphenhydramine and promethazine. (02 marks) [Jan. 2020]

Gastric Proton Pump Inhibitors

1. Write the structure of omeprazole and chlorambucil. (02 marks) [Sept. 2023]
2. Write the structure of any two gastric proton pump inhibitors. (02 marks) [May 2023]
3. Enumerate the structure, mechanism of action and use of cetirizine. (05 marks) [Jan. 2023]
4. Structure and use of omeprazole. (02 marks) [Jan. 2023]
5. Chemistry and mechanism of action of gastric proton pump inhibitors. (05 marks) [Jan. 2021]

Anti Neoplastic Agents

1. Mechanism of action and uses of cisplatin. (02 marks) [Sept. 2023]
2. Structure, mechanism of action and uses of cisplatin and mitotane. (05 marks) [May 2023]
3. Draw the structure of vinblastine sulphate and its uses. (02 marks) [May 2023]
4. Structure and mechanism of action of cyclophosphamide. (02 marks) [May 2023]
5. Draw the structure and uses of methotrexate. (02 marks) [May 2023]
6. Classify antimetabolites used as antineoplastic agents with one structure from each class. Write the synthesis of mercaptopurine. (05 marks) [Jan. 2023]
7. Explain the synthesis of diphenhydramine and promethazine. (05 marks) [Jan. 2023]
8. Explain antineoplastic antibiotics. (02 marks) [Jan. 2023]
9. Explain the SAR of alkylating agents. (05 marks) [July 2022]
10. Chemistry, mechanism of action and uses of mercaptopurine. (05 marks) [July 2022]
11. Mechanism of action and synthesis of methotrexate. (05 marks) [Nov. 2021]
12. Brief out on purine antimetabolites. (02 marks) [Nov. 2021]

13. Enumerate the classification of alkylating agents with examples, mechanism of action and synthesis of meclorothamine. (10 marks) **[Jan. 2021]**
14. Antineoplastic plant products.(02 marks) **[Jan. 2021]**
15. Define and classify alkylating agents. Describe the mechanism of action and synthesis of any one alkylating agent. (10 marks) **[Jan. 2020]**
16. Synthesis of methotrexate. (02 marks) **[Jan. 2020]**
17. Chemistry and uses of cisplatin and sodium nitroprusside. (05 marks) **[Jan. 2020]**

UNIT II

Antianginal

1. Structure, mechanism of action and uses of nitroglycerin and isosorbide dinitrate. (05 marks) **[Sept. 2023]**
2. Classify anti-anginal drugs with examples. Explain the chemistry, mechanism of action and synthesis of any one vasodilators. (10 marks) **[May 2023]**
3. Outline the synthesis of isosorbide dinitrate. (02 marks) **[May 2023]**
4. Classify calcium channel blockers with one structure from each class. (02 marks) **[Jan. 2023]**
5. Explain the synthesis of isosorbide dinitrate and nitroglycerine. (02 marks) **[Jan. 2023]**
6. Outline the synthesis of nitroglycerine. (02 marks) **[July 2022]**
7. Write the mechanism of action and structure of any one calcium channel blocker. (02 marks) **[July 2022]**
8. Mechanism of action and uses of nitro vasodilators. Write the synthesis of any one. (05 marks) **[Nov 2021]**
9. Role of dihydropyridines with the structure of any one. (02 marks) **[Nov 2021]**
10. Calcium channel blockers. (05 marks) **[Jan 2021]**
11. Chemistry and uses of nitro vasodilators. (02 marks) **[Jan 2020]**

Diuretics

1. Structure, mechanism of action and uses of acetazolamide and hydrochlorothiazide. (05 marks) **[Sept. 2023]**
2. Outline the synthesis of furosemide. (02 marks) **[Sept. 2023]**
3. Define and classify diuretics with examples. Write the synthesis and mechanism of action of any one thiazide diuretics. (10 marks) **[May 2023]**
4. Structure, mechanism of action and uses of furosemide. (02 marks) **[May 2023]**
5. Write the mode of action of carbonic anhydrase inhibitors. (02 marks) **[May 2023]**
6. Mechanism of action and synthesis of furosemide. (05 marks) **[Jan. 2023]**
7. Classify diuretics with examples. (02 marks) **[Jan. 2023]**
8. Outline the synthesis of chlorthiazide. (02 marks) **[Jan. 2023]**
9. Outline the structure and use of ethacrynic acid. (02 marks) **[Jan. 2023]**
10. Define diuretics. Explain the chemistry and mechanism of action of potassium sparing diuretics with suitable examples. (05 marks) **[July 2022]**
11. Give the structure and uses of ethacrynic acid and triamterene. (02 marks) **[July 2022]**

12. Define diuretics and elaborate the classification with examples, mechanism of action of each class, structure and synthesis of any two drugs. (10 marks) [Nov 2021]
13. Chemistry, mechanism of action and uses of acetazolamide. (05 marks) [Jan 2021]
14. What are loop diuretics. (02 marks) [Jan 2020]
15. Write the mechanism of action of potassium sparing diuretics. (02 marks) [Jan 2020]

Antihypertensives

1. Classify anti-hypertensive agents. Write the structure and uses of captopril. (05 marks) [Sept 2023]
2. Classify antihypertensive agents. Write the structure and uses of benazepril HCl. (05 marks) [May 2023]
3. Centrally acting antihypertensive agents. (05 marks) [Jan. 2023]
4. Structure, mechanism of action and uses of minoxidil. (02 marks) [July 2022]
5. Structure and mechanism of action of clonidine. (02 marks) [Nov. 2021]
6. Structure class and use of hydralazine (02 marks) [Nov. 2021]
7. Classify antihypertensive agents with at least one structure from each class. Write the mechanism of action of angiotensin converting enzyme inhibitors. Explain the synthesis of any one thiazide diuretics.(10 marks) [Jan 2021]
8. What are antihypertensive agents. Classify them with examples. Write the synthesis of furosemide and acetazolamide. (10 marks) [Jan 2020]
9. Chemistry and uses of angiotensin converting enzyme inhibitors. (05 marks) [Jan 2020]

UNIT III

Anti-Arrhythmic Drugs

1. Write the chemistry and synthesis of disopyramide phosphate. (05 marks) [Sept 2023]
2. Write the chemistry and synthesis of any one antiarrhythmic agent. (05 marks) [May 2023]
3. Write the mechanism of action and uses of phenytoin. (05 marks) [May 2023]
4. Classify antiarrhythmic agents with examples. (02 marks) [Jan. 2023]
5. Depict the mechanism of action and synthesis of Disopyramide. (05 marks) [Jan 2021]
6. Draw the structure of any two anti-arrhythmic drugs. (02 marks) [Jan 2020]

Anti-Hyperlipidemic Agents

1. Write briefly on anti-hyperlipidemic agents. (05 marks) [Sept 2023]
2. Mechanism of action and uses of lovastatin. (02 marks) [Sept 2023]
3. Write briefly on anti-hyperlipidemic agents. (05 marks) [May 2023]
4. Classify antihyperlipidemic agents with examples. (02 marks) [Jan. 2023]
5. Classify anti-hyperlipidemic agents. Explain the mechanism of action of lovastatin. Explain the chemistry and uses of quinidine sulphate. (10 marks) [July 2022]
6. Classify antihyperlipidemic agents with one structure from each class. Explain the mechanism of action of any two. (10 marks) [Nov 2021]

Coagulants and Anti-Coagulants

1. Outline the synthesis of warfarin. (02 marks) [Sept 2023]
2. Define coagulants with examples. (02 marks) [July 2022]
3. Coagulants and anticoagulants. (05 marks) [Nov. 2021]
4. Give the structure and use of any one anticoagulant. (02 marks) [Jan 2021]
5. Anticoagulants. (02 marks) [Jan 2020]

Drugs Uded in CHF

1. Structure, mechanism of action and uses of digoxin and digitoxin. (05 marks) [Sept 2023]
2. Drugs used in congestive heart failure. (05 marks) [May 2023]
3. Explain the chemistry and pharmacological uses of cardiac glycosides. (05 marks) [Jan 2023]
4. Cardio-tonics. (02 marks) [July 2022]
5. Role of digitalis glycosides in congestive heart failure. (02 marks) [Jan 2021]
6. Structure and uses of digitoxin. (02 marks) [Jan 2020]

UNIT IV

Drugs Acting on Endocrine System

1. Structure and Mechanism of action of sildenafil. (02 marks) [Sept 2023]
2. Therapeutic uses of dexamethasone and methimazole. (02 marks) [Sept 2023]
3. Explain briefly on the nomenclature, stereochemistry and metabolism of steroidal hormones. (10 marks) [Jan 2023]
4. The drugs used for erectile dysfunction. (05 marks) [Jan 2023]
5. Outline the functions of mineralocorticoids. (02 marks) [Jan 2023]
6. Explain the stereochemistry of steroids. (05 marks) [July 2022]
7. Draw the structure of any two corticosteroids (02 marks) [July 2022]
8. Chemistry of male sex hormones. (02 marks) [July 2022]
9. Explain the chemistry of sex hormones. (05 marks) [Nov 2021]
10. Chemistry and uses of nandralone. (02 marks) [Nov 2021]
11. Chemistry of glucocorticoids. (02 marks) [Nov 2021]
12. Write the structure and use of diethyl stilbesterol. (02 marks) [Jan 2021]
13. What are corticosteroids. Outline the types with examples. (02 marks) [Jan 2021]
14. Write a note on drugs used in erectile dysfunction. (05 marks) [Jan 2020]
15. Explain oral contraceptives with examples. (05 marks) [Jan 2020]

Thyroid and Anti-Thyroid Drugs

1. Write the chemical structure of L-thyroxine and propylthiouracil. (02 marks) [Sept 2023]
2. Define anti-thyroid drugs with examples. (02 marks) [May 2023]
3. Anti-thyroid drugs. (05 marks) [July 2022]

4. Brief note on thyroid hormones. (05 marks) [Nov 2021]
5. Mechanism of action of antithyroid agents. (02 marks) [Jan 2021]
6. Chemistry, mechanism of action and uses of L-thyroxine. (05 marks) [Jan 2020]

UNIT V

Antidiabetic Agents

1. Classify anti-diabetic agents with examples. Explain the chemistry, mechanism of action and synthesis of any one drug in the category of sulfonyl urea. (10 marks) [Sept 2023]
2. Short note on insulin and its preparations. (05 marks) [Sept 2023]
3. Mechanism of action and uses of mannitol (02 marks) [Sept 2023]
4. Insulin and its preparation. (05 marks) [July 2022]
5. Chemistry of insulin. Add a note on insulin preparation. (05 marks) [Nov. 2021]
6. Structure and use of any one thiazolidinediones. - (02 marks) [Nov 2021]
7. Explain the chemistry of insulin. (05 marks) [Jan 2021]
8. Outline the role of glucosidase inhibitors as antidiabetic agents. (02 marks) [Jan 2021]
9. Outline the synthesis of tolbutamide. (02 marks) [Jan 2021]
10. Classify oral hypoglycemic agents with at least one structure from each class. (05 marks) [Jan 2020]

Local Anesthetics

1. Define and classify local anaesthetics with examples. Write the synthesis and mechanism of action of any amino benzoic acid derivative. (10 marks) [Sept 2023]
2. Outline the synthesis of procaine. (02 marks) [May 2023]
3. What are local anesthetic agents. Classify them with structures of any two from each class. Explain the structure activity relationship and mechanism of action of local anesthetics. (10 marks) [Jan 2023]
4. What are local anaesthetics. Outline the synthesis of benzocaine. (05 marks) [July 2022]
5. Write the synthesis and uses of warfarin. (02 marks) [July 2022]
6. Explain the structure and use of dibucaine. (02 marks) [Nov. 2021]
7. Synthesis and uses of benzocaine and procaine. (05 marks) [Jan. 2021]
8. Write the examples and uses of anilide derivatives. (02 marks) [Jan. 2021]
9. Explain the SAR of amino benzoic acid derivatives. (05 marks) [Jan. 2020]
10. Outline the synthesis of procaine. (02 marks) [Jan. 2020]
11. Draw the structure of Dibucaine and its uses. (02 marks) [Jan. 2020]

FORMULATIVE PHARMACY -II

(QPCODE: 522006)



Unit I

1. What do you mean by BCS classification of drugs.(02 marks) **(Jan 2020)**
2. Mention various physical properties studied in preformulation and briefly explain any two properties. (05 marks) **(Jan 2020)**
3. Discuss the different preformulation study in pharmaceutical dosage form. (05 marks) **(Nov 2021)**
4. Goals and objectives of preformulation study. (02 marks) **(Nov 2021)**
5. Explain BCS classification of drugs. (02 marks) **(July 2022)**
6. Hydrolysis and Polymerization. (05 marks) **(Sept 2023)**

Unit II

1. Mention different types of tablet coating. Enlist different coating materials. (02 marks) **(Jan 2020)**
2. Define and classify tablets. Discuss wet granulation method in detail.(10 marks) **(Jan 2020)**
3. Explain Chilsonator roller compactor. (05 marks) **(Nov 2021)**
4. Explain the steps involved in sugar-coating process of tablets. (05 marks) **(Nov 2021)**
5. Explain different quality control tests for tablets. (10 Marks) **(July 2022)**
6. Explain different tableting problems. (02 marks) **(July 2022)**
7. Briefly explain the quality control tests for a) In process b) finished products for Tablets. Describe two methods of tablet coating. (10 marks) **(September 2023)**
8. Briefly explain the method of dry granulation for tablets. (05 marks) **(September 2023)**
9. Define direct compression method. (02 marks) **(September 2023)**
10. Classification of tablets. (02 marks) **(September 2023)**

Unit III

1. What is base adsorption value. Write its importance.(05 marks) **(Jan 2020)**
2. Explain various official quality control tests for hard gelatin capsules.(10 marks) **(Jan 2020)**
3. Write the sources and method of extraction process of gelatin. How to fill the drug in soft gelatin capsule by Rotary die process. (10 marks) **(Nov 2021)**
4. Explain extraction of gelatin along with a flow sheet.(05 Marks) **(July 2022)**
5. Describe Rotary Die process for the production of soft gelatin capsules.(05 marks) **(July 2022)**
6. Describe any one pelletization process in detail. (05 marks) **(July 2022)**
7. Define base adsorption value and write its significance. (05 marks) **(July 2022)**
8. Describe the working of a semi-automatic capsule filling machine. (05 marks) **(September 2023)**
9. Discuss the various techniques used in preparation of pharmaceutical pellets. Add a note on the equipment used for the manufacture of pellets. (10 marks) **(September 2023)**
10. Classify Capsules. Define bloom strength and its significance. (05 marks) **(September 2023)**

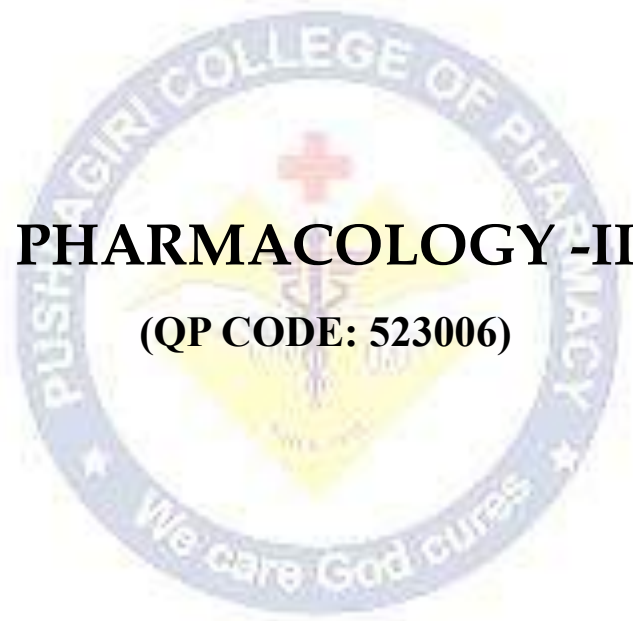
Unit IV

1. Parenteral products should be sterile and free from pyrogens. Give reasons.(02 marks) **(Jan 2020)**
2. How do you seal the ampoules. (02 marks) **(Jan 2020)**
3. Laminar air flow.(02 marks) **(Jan 2020)**
4. Discuss different methods of sterilization for parenteral products. (05 marks) **(Jan 2020)**

5. Explain sterility test and pyrogen test for parenteral products . (05 marks) **(Jan 2020)**
6. General composition of eye drops. (05 marks) **(Jan 2020)**
7. Explain the requirements of parenteral preparations and discuss the quality control test for parenteral products. (10 marks)**(Nov 2021)**
8. Define and classify parenteral products. Add a note on different ingredients used in parenteral products. (10 Marks) **(July 2022)**
9. Explain the formulation of eye drops. (05 marks) **(July 2022)**
10. Enlist different sterilization methods.(02 marks) **(July 2022)**
11. Explain lyophilization. Write its applications. (02 marks) **(July 2022)**
12. Explain the filling and sealing of ampoules. (02 marks) **(September 2023)**
13. Explain sterile powders. (02 marks) **(September 2023)**
14. What are pyrogens. (02 marks)**(September 2023)**
15. What are eye ointments. (05 marks) **(September 2023)**
16. Importance of isotonicity. (02 marks) **(September 2023)**

Unit V

1. What are the components of aerosol packages. (02 marks) **(Jan 2020)**
2. Mention the differences between cold cream and vanishing cream. (02 marks) **Jan 2020**
3. Enlist different ingredients used in the preparation of Lipsticks along with their uses. (05 marks) (**Jan 2020**)
4. Evaluation of Aerosols. (05 marks) (**Jan 2020**)
5. Discuss different types of glass used in pharmaceutical packaging. (05 marks) **(Jan 2020)**
6. Formulation of hair dye. (02 marks) **(Nov 2021)**
7. Define aerosols, write the containers used for aerosols. (02 marks) **(Nov 2021)**
8. Importance of isotonicity in parenteral preparation. (02 marks) (**Nov 2021**)
9. Discuss the materials used for packaging of pharmaceutical products. (05 marks) **(Nov 2021)**
10. Explain the formulation and Manufacturing of toothpaste. (05 marks) (**Nov 2021**)
11. Explain the container system for aerosols. (05 marks) **(July 2022)**
12. Discuss the factors influencing the selection of containers. (05 marks) **(July 2022)**
13. Explain Toothpastes. 5 marks **(September 2023)**
14. Stability studies of Pharmaceutical Aerosols. (05 marks) **(September 2023)**
15. Enlist the types of aerosol system. (02 marks) **(September 2023)**
16. Write the formula for vanishing cream. (02 marks) **(September 2023)**
17. Sunscreens. (02 marks) **(September 2023)**
18. Valves for Aerosols. (02 marks) **(September 2023)**



PHARMACOLOGY -II

(QP CODE: 523006)

UNIT I**Pharmacology of Drugs Acting on Cardio Vascular System**

1. Classify anti-hyperlipidaemic drugs with examples. Write the mechanism, pharmacological actions, uses and side effects of atorvastatin. (10 Marks) **[September 2023]**
2. Mechanism of action and uses of digoxin. (05 Marks) **[September 2023]**
3. Classify anti-hypertensive drugs with examples. (05 Marks) **[September 2023]**
4. Classify anti-hyperlipidemics. Explain the pharmacology of any one class of anti-hyper lipidemic drugs with emphasis on therapeutic uses and adverse effects. (10 Marks) **[May 2023]**
5. Mechanism of action and drug interactions of Class I antiarrhythmics. (05 Marks) **[May 2023]**
6. Explain briefly the pharmacology of beta-blockers. (05 Marks) **[May 2023]**
7. What are angiotensin converting enzyme inhibitors. (02 Marks) **[May 2023]**
8. Mention the adverse effects of alpha-blockers. (02 Marks) **[May 2023]**
9. Classify antihypertensives. Explain the pharmacology of any one class of antihypertensive drugs with emphasis on therapeutic uses and adverse effects. (10 Marks) **[January 2023]**
10. Explain drug interactions and adverse effects of digoxin. (05 Marks) **[January 2023]**
11. HMG-Co A Reductase inhibitors. (05 Marks) **[January 2023]**
12. Explain vasodilators. (02 Marks) **[January 2023]**
13. Define angina pectoris and classify the anti-anginal drugs. Write the mechanism of action, adverse effects and uses of nitrates. (10 Marks) **[July 2022]**
14. Explain the mechanism of action and adverse effects of digoxin. (05 Marks) **[July 2022]**
15. Calcium channel blockers. (05 Marks) **[July 2022]**
16. Give four examples of anti hyperlipidemic drugs. (02 Marks) **[July 2022]**
17. Classify anti-anginal drugs and write the detailed pharmacology of nitrates. (10 Marks) **[November 2021]**
18. Explain about the sodium channel blockers used as an antiarrhythmic drugs. (05 Marks) **[November 2021]**
19. Digoxin. (05 Marks) **[November 2021]**
20. Therapeutic uses of losartan. (02 Marks) **[November 2021]**
21. Explain minoxidil. (02 Marks) **[November 2021]**
22. Classify antihypertensive drugs with examples. Write in detail about angiotensin converting enzyme inhibitors. (10 Marks) **[January 2021]**
23. Classify anti hyperlipidemic drugs. Explain the mechanism of action statins. (05 Marks) **[January 2021]**
24. Name four drugs used in the treatment of congestive heart failure. (02 Marks) **[January 2021]**
25. Describe the mechanism of action of digoxin. Explain the pharmacology, adverse effects and therapeutic uses of digoxin. (10 Marks) **[January 2020]**
26. Write the mechanism of action of organic nitrates. (05 Marks) **[January 2020]**

27. What are calcium channel blockers. Explain their pharmacology. (05 Marks) [January 2020]
28. How sodium nitroprusside acts as antihypertensive agents. (02 Marks) [January 2020]
29. Mention the steps involved in cardiac electrophysiology. (02 Marks) [January 2020]

UNIT II

Pharmacology of Drugs Acting On Blood and Blood Forming Organs, Urinary System

1. Name the drugs used for shock. (02 Marks) [September 2023]
2. Define haematinics and coagulants. (02 Marks) [September 2023]
3. Examples for loop diuretics. (02 Marks) [September 2023]
4. Explain the role of Vitamin K in coagulation. Add a note on its adverse effects. (05 Marks) [May 2023]
5. Explain erythropoietin. (02 Marks) [May 2023]
6. Function of antidiuretic hormone. (02 Marks) [May 2023]
7. Explain antiplatelet drugs. Describe the pharmacology of any one antiplatelet agent. 10 Marks [January 2023]
8. Describe the mechanism of action and adverse effects of warfarin. (05 Marks) [January 2023]
9. Uses of fibrinolytic agents. (02 Marks) [January 2023]
10. Explain plasma volume expanders. (02 Marks) [January 2023]
11. Potassium sparing diuretics. (02 Marks) [January 2023]
12. Explain the mechanism of action and therapeutic uses of loop diuretics. (05 Marks) [July 2022]
13. What are fibrinolytics. Classify them and give their therapeutic applications. (05 Marks) [July 2022]
14. Name two potassium sparing diuretics. (02 Marks) [July 2022]
15. Name two in vitro anticoagulants. (02 Marks) [July 2022]
16. Erythropoietin. (02 Marks) [July 2022]
17. Anti-Haematinics. (05 Marks) [November 2021]
18. Name two side effects of thiazide diuretics. (02 Marks) [November 2021]
19. Hypovolaemic shock. (02 Marks) [November 2021]
20. Two uses of anti-platelet drugs. (02 Marks) [November 2021]
21. Two advantages of low molecular weight heparins. (02 Marks) [November 2021]
22. Drugs used in the therapy of shock. (05 Marks) [January 2021]
23. Low molecular weight heparins. (05 Marks) [January 2021]
24. Give example for parenteral iron supplement. (02 Marks) [January 2021]
25. What are osmotic diuretics. Give two examples. (02 Marks) [January 2021]
26. Classify diuretics. Enumerate the pharmacology of any one class of diuretics with emphasis on therapeutic uses and adverse effects. (10 Marks) [January 2020]
27. Describe the types, uses and adverse effects of heparin. (05 Marks) [January 2020]
28. Write about the role of Vitamin - B12 in maturation of erythrocytes. (02 Marks) [January 2020]

UNIT III**Autocoids and Related Drugs**

1. Classify non-steroidal anti-inflammatory agents with examples. Write the mechanism, pharmacological actions, uses and side effects of aspirin. (10 Marks) **[September 2023]**
2. Define angiotensin. Give its functions. (02 Marks) **[September 2023]**
3. Mention the synthesis, release and role of bradykinin as an autacoid. (05 Marks) **[May 2023]**
4. Describe the mechanism of action of aspirin. Add a note on its adverse effects. (05 Marks) **[May 2023]**
5. Any two functions of prostaglandins. (02 Marks) **[May 2023]**
6. Mechanism of action of colchicine. (02 Marks) **[May 2023]**
7. Explain the biosynthesis and physiological roles of histamine. (05 Marks) **[January 2023]**
8. Explain the mechanism of action of paracetamol and list its adverse effects. (05 Marks) **[January 2023]**
9. 5-HT antagonists. (05 Marks) **[January 2023]**
10. Mention about functions of leukotrienes. (02 Marks) **[January 2023]**
11. TNF-Alpha inhibitors use in rheumatoid arthritis. (02 Marks) **[January 2023]**
12. Mechanism of action of colchicine. (02 Marks) **[January 2023]**
13. Name two antirheumatic drugs. (02 Marks) **[July 2022]**
14. Uses of aspirin. (02 Marks) **[July 2022]**
15. Name two 5-HT antagonists. (02 Marks) **[July 2022]**
16. Classify non-steroidal anti-inflammatory drugs. Discuss the mechanism of action, pharmacological actions and side effects of aspirin. (10 Marks) **[November 2021]**
17. Describe the steps involved in synthesis and metabolism of bradykinin. (05 Marks) **[November 2021]**
18. Second generation of anti-histaminics. (05 Marks) **[November 2021]**
19. Ondansetron. (02 Marks) **[November 2021]**
20. Define gout. Name two anti-gout drugs. (02 Marks) **[November 2021]**
21. Classify antihistaminic drugs. Describe the actions, adverse effects and therapeutic uses of first generation H1 receptor antagonists. (10 Marks) **[January 2021]**
22. Symptoms and treatment of salicylate poisoning. (05 Marks) **[January 2021]**
23. Name two uses of prostaglandin analogues. (02 Marks) **[January 2021]**
24. Mention two selective Cyclooxygenase-2 inhibitors. (02 Marks) **[January 2021]**
25. Explain the synthesis and physiological role of angiotensin. (05 Marks) **[January 2020]**
26. Classify serotonin agonists and antagonists. Mention their clinical uses. (05 Marks) **[January 2020]**
27. Define and classify autacoids. (02 Marks) **[January 2020]**
28. What are disease modifying anti rheumatic drugs. Give few examples. (02 Marks) **[January 2020]**
29. Paracetamol poisoning. (02 Marks) **[January 2020]**

UNIT IV**Pharmacology of Drugs Acting on Endocrine System**

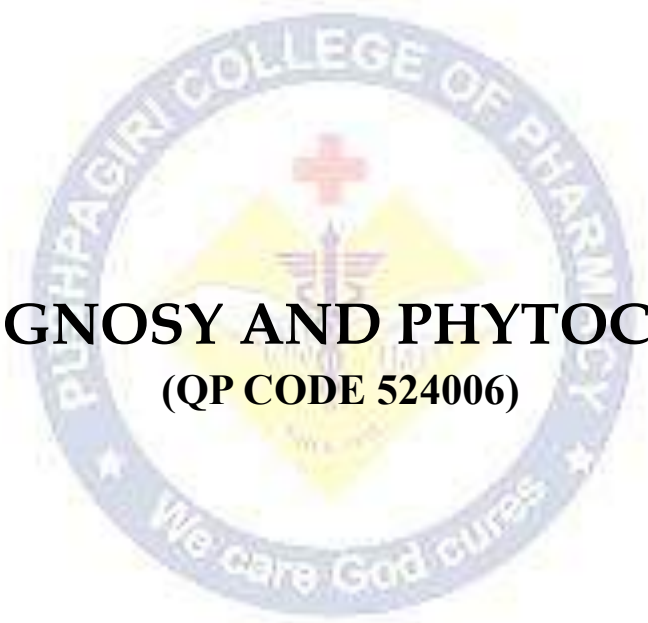
1. Biosynthesis of thyroid hormones. (05 Marks) [September 2023]
2. Add a note on insulin analogues. (05 Marks) [September 2023]
3. Functions of calcitonin. (02 Marks) [September 2023]
4. Examples for anterior pituitary hormone analogues. (02 Marks) [September 2023]
5. Explain ACTH. Write its functions. (02 Marks) [September 2023]
6. What are the types of insulin preparations available. Explain the structure, mechanism of action, pharmacology and adverse effects of insulin. (10 Marks) [May 2023]
7. Explain the physiological functions of Vitamin-D. (05 Marks) [May 2023]
8. Mention the effects of thyroid hormones. (02 Marks) [May 2023]
9. Explain the functions of growth hormone. (02 Marks) [May 2023]
10. Physiological role of calcitonin. (05 Marks) [January 2023]
11. List out the hormones released by anterior pituitary gland. (02 Marks) [January 2023]
12. What are the pharmacological actions of insulin. What are the various insulin preparations available. (10 Marks) [July 2022]
13. Enumerate pituitary hormones. (02 Marks) [July 2022]
14. Examples for anti-thyroid drugs. (02 Marks) [July 2022]
15. Name two inhalational steroids. (02 Marks) [November 2021]
16. Classify oral hypoglycemic agent. Discuss the mechanism of action sulfonyl ureas. (05 Marks) [January 2021]
17. Two adverse effects and two clinical uses of corticosteroids. (02 Marks) [January 2021]
18. Write about regulation of calcium in the body and mention the role of Parathormone. (05 Marks) [January 2020]
19. Insulin preparations. (02 Marks) [January 2020]
20. Mention the effect of glucagon on blood glucose levels. (02 Marks) [January 2020]

UNIT V**Pharmacology of Drugs Acting on Endocrine System, Bioassay**

1. Pharmacological actions of oxytocin. (05 Marks) [September 2023]
2. Bioassay of d-tubocurarine. (05 Marks) [September 2023]
3. Principle and applications of bioassay. (05 Marks) [September 2023]
4. Uses of mifepristone. (02 Marks) [September 2023]
5. Give examples for oral contraceptives. (02 Marks) [September 2023]
6. Oral contraceptive pills. (05 Marks) [May 2023]

7. Explain the adverse effects and therapeutic uses of 5-Alpha reductase inhibitors. (02 Marks) **[May 2023]**
8. What are uterine stimulants. Give two examples. (02 Marks) **[May 2023]**
9. Mention about the selective estrogen receptor modulators. Give examples. (02 Marks) **[January 2023]**
10. Explain anabolic steroids. (02 Marks) **[January 2023]**
11. Bioassay of histamine. (05 Marks) **[July 2022]**
12. Oxytocic drugs. (05 Marks) **[July 2022]**
13. Write the pharmacological actions and uses of oestrogen. (05 Marks) **[July 2022]**
14. Define bioassay. (02 Marks) **[July 2022]**
15. Principles and applications of bioassay. (05 Marks) **[November 2021]**
16. Tocolytics. (05 Marks) **[November 2021]**
17. Two uses of anti-androgens. (02 Marks) **[November 2021]**
18. Explain the bioassay of insulin. (05 Marks) **[January 2021]**
19. Oral contraceptives pills. (05 Marks) **[January 2021]**
20. Name two anabolic steroids. (02 Marks) **[January 2021]**
21. Two limitations of bioassay. (02 Marks) **[January 2021]**
22. Two uses of bromocriptine. (02 Marks) **[January 2021]**
23. Define tocolytics with examples. (02 Marks) **[January 2021]**
24. Discuss the physiological role and regulation of oestrogens. (05 Marks) **[January 2020]**
25. Mention the adverse effects and therapeutic uses of finasteride. (02 Marks) **[January 2020]**
26. Define uterine relaxants. Give two examples. (02 Marks) **[January 2020]**

PHARMACOGNOSY AND PHYTOCHEMISTRY -II
(QP CODE 524006)



UNIT - I

1. Explain in detail the various techniques used in elucidation of biosynthetic pathways.(10 Marks) **[Sep 2023]**
2. Elucidate Shikimic acid pathway. (05 Marks) **[Sep 2023]**
3. Explain tracer technique. (05 Marks) **[Dec 2023]**
4. Discuss briefly about the various tracer techniques used in investigation of biogenetic pathway studies. (10 Marks) **[May 2023]**
5. Name any two basic metabolic pathways in the formation of plant secondary Metabolites. (02 Marks) **[Jan 2023]**
6. Name the different methods of feeding radio isotopes to plants in tracer technique. (02 Marks) **[Jan 2023]**
7. Explain the various tracer techniques in the investigation of biogenetic studies. (10 Marks) **[Jul 2022]**
8. Explain the Mevalonic acid pathway in the biosynthesis of terpenes. (05 Marks) **[Jul 2022]**
9. Explain Autoradiography. (02 Marks) **[Jul 2022]**
10. Outline the Acetate pathway and explain its significance. (10 Marks) **[Jan 2021]**
11. Explain competitive feeding. (02 Marks) **[Jan 2021]**

UNIT-II

1. Define and classify alkaloids with examples. Explain the source and industrial production of atropine. (10 Marks) **[Sep 2023]**
2. Write the general method of extraction and chemical tests for glycosides. (05 Marks) **[Sep 2023]**
3. Describe the microscopy of Ginger. (05 Marks) **[Sep 2023]**
4. Morphology of Clove. (02 Marks) **[Sep 2023]**
5. Define resin, classify with example. (02 Marks) **[Sep 2023]**
6. Chemical constituents and identification test for Cinchona. (02 Marks) **[Sep 2023]**
7. Write the biological source, chemical constituents, and uses of Dioscorea. (02 Marks) **[Sep 2023]**
8. Write the method of collection of Opium. (02 Marks) **[Sep 2023]**
9. Write the biological source, chemical constituents, and uses of Myrrh. (02 Marks) **[Sep 2023]**
10. Classify tannins with examples. (02 Marks) **[Sep 2023]**
11. Define and classify glycosides, with examples. Write the source, chemical constituents, and method of extraction of Senna. (10 Marks) **[Dec 2023]**
12. Write a note on lignans and carotenoids. (05 Marks) **[Dec 2023]**
13. Describe the anatomy of Digitalis. (05 Marks) **[Dec 2023]**
14. Differentiate between Sumatra and Siam benzoin. (05 Marks) **[Dec 2023]**
15. Write the biological source, chemical constituents, and uses of Mentha. (02 Marks) **[Dec 2023]**
16. Morphology of Rauwolfia. (02 Marks) **[Dec 2023]**
17. Write the biological source, chemical constituents, and uses of Asafoetida. (02 Marks) **[Dec 2023]**
18. Name the flavonoids present in Liquorice. Give their medicinal importance. (02 Marks) **[Dec 2023]**

19. Define alkaloids, give examples, and mention its general properties. (02 Marks) **[Dec 2023]**
20. Write the chemical tests to differentiate pale catechu and black catechu. (02 Marks) **[Dec 2023]**
21. Give a pharmacognostic account on Cinchona. (10 Marks) **[May 2023]**
22. Differentiate Indian Senna and Alexandrian Senna. (05 Marks) **[May 2023]**
23. Adulterants of clove. (05 Marks) **[May 2023]**
24. Chemical tests for benzoin. (05 Marks) **[May 2023]**
25. Explain the microscopical character of ginger with neat labelled diagram. (05 Marks) **[May 2023]**
26. Pharmacognosy of Guggul. (05 Marks) **[May 2023]**
27. Explain the source, family and uses of Myrrh. (02 Marks) **[May 2023]**
28. Modified Borntrager Test. (02 Marks) **[May 2023]**
29. Explain the source, family and uses of Artemisia. (02 Marks) **[May 2023]**
30. Explain the chemical structure and uses of Ephedra. (02 Marks) **[May 2023]**
31. Chemical constituents and uses of tea. (02 Marks) **[May 2023]**
32. Chemical constituents and uses of ginger. (02 Marks) **[May 2023]**
33. Chemical constituents and uses of opium. (02 Marks) **[May 2023]**
34. Discuss in detail the collection, constituents with uses and chemical test of Opium. (10 Marks) **[Jan 2023]**
35. Dioscorea rhizome. (05 Marks) **[Jan 2023]**
36. Illustrate the pharmacognosy of Rauwolfia root. (05 Marks) **[Jan 2023]**
37. Explain Taxus. (05 Marks) **[Jan 2023]**
38. Explain the term iridoids and discuss the pharmacognosy of Gentian. (05 Marks) **[Jan 2023]**
39. Mention any two uses of bitter almond. (02 Marks) **[Jan 2023]**
40. List the constituents of ginger and how will you mask the pungency of ginger. (02 Marks) **[Jan 2023]**
41. Explain Lignans. Give examples. (02 Marks) **[Jan 2023]**
42. Explain the confirmatory test for Asafoetida. (02 Marks) **[Jan 2023]**
43. Explain the therapeutic uses of cinnamon. (02 Marks) **[Jan 2023]**
44. Therapeutic use of colophony. (02 Marks) **[Jan 2023]**
45. Describe the collection, constituents with uses and chemical test of digitalis leaf. (10 Marks) **[Jul 2022]**
46. Benzoin. (05 Marks) **[Jul 2022]**
47. Explain the term Tannin and compare pale and Black catechu. (05 Marks) **[Jul 2022]**
48. Differentiate between Aloes and senna. (05 Marks) **[Jul 2022]**
49. Discuss the pharmacognosy of Belladonna. (02 Marks) **[Jul 2022]**
50. Recall the uses of Ephedra and Ruta. (02 Marks) **[Jul 2022]**
51. Enumerate the uses of clove. (02 Marks) **[Jul 2022]**
52. Mention the constituents of tea leaf. (02 Marks) **[Jul 2022]**

53. What are flavonoids. Give examples. (02 Marks) **[Jul 2022]**
54. Explain the therapeutic uses of Myrrh. (02 Marks) **[Jul 2022]**
55. Explain the term glycosides with examples. (02 Marks) **[Jul 2022]**
56. Mention the crude drug used for bronchodilator activity and its source. (02 Marks) **[Jul 2022]**
57. Mention the phytoconstituent responsible for synthesis of steroids. (02 Marks) **[Jul 2022]**
58. Explain the microscopical characters of Rauwolfia with neat labelled diagram. (05 Marks) **[Nov 2021]**
59. Compare the method of collection and macroscopy of four types of Aloes. (05 Marks) **[Nov 2021]**
60. Colophony. (05 Marks) **[Nov 2021]**
61. Cultivation and collection of opium. (05 Marks) **[Nov 2021]**
62. Explain the biological sources, chemical constituents and uses of Dioscorea. (05 Marks) **[Nov 2021]**
63. Vitali-Morin Reaction. (02 Marks) **[Nov 2021]**
64. Keller-Kiliani Test. (02 Marks) **[Nov 2021]**
65. Explain the biological source, chemical constituents and uses of Mentha. (02 Marks) **[Nov 2021]**
66. Biological source and family of Tea. (02 Marks) **[Nov 2021]**
67. Explain the biological source and uses of Bitter Almond. (02 Marks) **[Nov 2021]**
68. Chemical constituents and uses of Ruta. (02 Marks) **[Nov 2021]**
69. Chemical constituents and uses of Pterocarpus. (02 Marks) **[Nov 2021]**
70. Explain the biological source and family of Gentian. (02 Marks) **[Nov 2021]**
71. Source and uses of any two Carotenoids. (02 Marks) **[Nov 2021]**
72. Illustrate in detail pharmacognosy of cinchona Bark. (10 Marks) **[Jan 2021]**
73. Asafoetida. (05 Marks) **[Jan 2021]**
74. Explain the term Alkaloids and recall general chemical test for alkaloids. (05 Marks) **[Jan 2021]**
75. Adulterants of Clove. (05 Marks) **[Jan 2021]**
76. Discuss the powder microscopical characters of fennel with diagram. (05 Marks) **[Jan 2021]**
77. Write the pharmacognosy of benzoin. (05 Marks) **[Jan 2021]**
78. How will you identify caffeine in tea dust. (02 Marks) **[Jan 2021]**
79. Mention the biological source and constituents of liquorice rhizome. (02 Marks) **[Jan 2021]**
80. Define carotenoids. (02 Marks) **[Jan 2021]**
81. Explain the biological source and use of dioscorea. (02 Marks) **[Jan 2021]**
82. Compare the stomata present in digitalis leaf and senna leaf with diagram. (02 Marks) **[Jan 2021]**
83. Mention the therapeutic use of Bitter almond. (02 Marks) **[Jan 2021]**
84. Explain the medicinal uses of Pterocarpus. (02 Marks) **[Jan 2021]**
85. Recall the drug used in cerebral malaria and its sources. (02 Marks) **[Jan 2021]**

86. Write the biological source, family, cultivation, collection, microscopy, chemical constituents and uses of clove. (10 Marks) **[Jan 2020]**
87. Pharmacognosy of Belladonna. (05 Marks) **[Jan 2020]**
88. Constituents of digitalis. (05 Marks) **[Jan 2020]**
89. Difference between fennel and coriander. (05 Marks) **[Jan 2020]**
90. Microscopy of Liquorice with diagram. (05 Marks) **[Jan 2020]**
91. Cultivation of Cinnamon. (05 Marks) **[Jan 2020]**
92. Chemical test of Pale Catechu. (05 Marks) **[Jan 2020]**
93. Source, family, constituents and uses of Taxus. (02 Marks) **[Jan 2020]**
94. How is the pungency of ginger destroyed. (02 Marks) **[Jan 2020]**
95. Write the source for four varieties of Aloes. (02 Marks) **[Jan 2020]**
96. Gambier Fluorescein test. (02 Marks) **[Jan 2020]**
97. Combined umbelliferone test. (02 Marks) **[Jan 2020]**
98. Write the chemical test for Cinnamon. (02 Marks) **[Jan 2020]**
99. Murexide Test. (02 Marks) **[Jan 2020]**
100. Adulterants and substituents of Digitalis. (02 Marks) **[Jan 2020]**
101. Any two powder microscopical characters of Ephedra. (02 Marks) **[Jan 2020]**

UNIT-III

1. Explain industrial production and estimation of artemisinin. (05 Marks) **[Sep 2023]**
2. Give the source and method of isolation of caffeine. (05 Marks) **[Sep 2023]**
3. Write the chemical constituents and uses of Podophyllum. (02 Marks) **[Sep 2023]**
4. Chemical constituents of Vinca and uses. (02 Marks) **[Sep 2023]**
5. Describe method of production, and estimation of taxol. (05 Marks) **[Dec 2023]**
6. Describe the method of isolation and analysis of podophyllotoxin. (05 Marks) **[Dec 2023]**
7. Explain the industrial production and estimation of vincristine and vinblastine. (05 Marks) **[Dec 2023]**
8. Write the method of estimation of forskolin. (02 Marks) **[Dec 2023]**
9. Explain the industrial production and utilization of Atropine. (05 Marks) **[May 2023]**
10. Therapeutic uses of Vincristine. (02 Marks) **[May 2023]**
11. Explain the industrial production, estimation and utilization of digoxin. (10 Marks) **[Jan 2023]**
12. Discuss the industrial production method and application of Senna glycosides. (05 Marks) **[Jan 2023]**
13. Explain the production and estimation of podophyllotoxin from its sources. (05 Marks) **[Jan 2023]**
14. Give the structure of sennosides. (02 Marks) **[Jan 2023]**
15. Discuss the industrial production and utilization of Vinca alkaloids. (05 Marks) **[Jul 2022]**
16. Explain Artemisinin. (02 Marks) **[Jul 2022]**

17. Explain the industrial production and utilization of Taxol. (05 Marks) **[Nov 2021]**
18. Explain the industrial production and pharmaceutical applications of Vinblastine. (05 Marks) **[Nov 2021]**
19. Explain the Industrial production method and pharmaceutical applications of Vinca alkaloids. (10 Marks) **[Jan 2021]**
20. List out any two uses of Forskolin. (02 Marks) **[Jan 2021]**
21. Industrial production and pharmaceutical application of Podophyllotoxin. (05 Marks) **[Jan 2020]**

UNIT IV

1. Describe in detail about column chromatography. (05 Marks) **[Sep 2023]**
2. Describe microwave assisted extraction method. (05 Marks) **[Sep 2023]**
3. Write the applications of infra-red spectroscopy. (02 Marks) **[Sep 2023]**
4. Explain the role of chromatographic techniques in isolation and estimation of herbal drugs. (10 Marks) **[Dec 2023]**
5. Give any five applications of spectroscopical methods. (02 Marks) **[Dec 2023]**
6. What is super critical fluid. (02 Marks) **[Dec 2023]**
7. Write the application of gel electrophoresis. (02 Marks) **[Dec 2023]**
8. Principle and applications of HPTLC. (05 Marks) **[May 2023]**
9. Principle and application of electrophoresis. (02 Marks) **[May 2023]**
10. Application of Mass spectroscopy. (02 Marks) **[May 2023]**
11. Explain chromatographic techniques used in plant drug analysis. (05 Marks) **[Jan 2023]**
12. Mention the spray reagents used to detect alkaloids. (02 Marks) **[Jan 2023]**
13. Outline the role of infra-red spectroscopy in evaluation of plant constituents. (05 Marks) **[Jul 2022]**
14. Discuss in detail the modern methods of extraction of phytoconstituents. (10 Marks) **[Nov 2021]**
15. Principle involved in Paper Chromatography. (02 Marks) **[Nov 2021]**
16. Summarize the use of electrophoresis in phytochemical analysis. (05 Marks) **[Jan 2021]**
17. Describe the principle involved in Gas chromatography and its applications in pharmacognosy. (05 Marks) **[Jan 2021]**
18. Elaborate on various chromatographic techniques for isolation and purification of phytoconstituents. (10 Marks) **[Jan 2020]**
19. Principle and applications of Thin Layer Chromatography. (02 Marks) **[Jan 2020]**

PHARMACEUTICAL JURISPRUDENCE

(QP CODE: 525006)



UNIT I**DRUGS AND COSMETICS ACT, 1940, RULES 1945**

1. Explain the administrative bodies of Drugs and Cosmetics Act, 1940 and Rules 1945. Write a note on the qualification, powers and duties of drug inspectors. (10 Marks) **[January 2023]**
2. Describe the formation and circumstances which lead to the formation of Drug Enquiry Committee (Chopra Committee) and explain its objectives and final recommendations to the government.(10 Marks) **[January 2023]**
3. Explain the qualification, duties and responsibilities of drug inspector. Explain the procedure for taking of samples by drug inspector.(10 Marks) **[May 2023]**
4. Write the composition and functions of DTAB and DCC. (10 Marks) **[December 2023]**
5. Explain the role and functions of drug inspector in Drug and Cosmetic Act.(10 Marks) **[December 2023]**
6. Describe the general procedure for obtaining a licence for the manufacture of drugs stating the conditions to be satisfied. (10 Marks) **[May 2023]**
7. What are the duties and procedures adopted by government analysts. (05 Marks) **[January 2023]**
8. Explain about Drugs Technical Advisory Board (DTAB). (05 Marks) **[January 2021]**
9. Constitution of Drug Technical Advisory Board (DTAB). (05 Marks) **[November 2021]**
10. Drug Enquiry Committee. (05 Marks) **[July 2022]**
11. Explain the control and regulation regarding the cultivation of opium. (05 Marks) **[July 2022]**
12. Explain the duties of drug inspectors. (05 Marks) **[July 2022]**
13. Explain the condition required for the manufacture of new drugs(05 Marks) **[July 2022]**
14. Give the class of drugs and cosmetics prohibited from import. (05 Marks) **[January 2023]**
15. Give the constitution of drugs technical advisory board. (05 Marks) **[May 2023]**
16. Explain the recommendations of the Drug Enquiry Committee. 5Marks **[May 2023]**
17. Explain the distribution of drugs from motor vehicle. (02 Marks) **[January 2020]**
18. Explain the duties of Govt. Analyst. (02 Marks) **[January 2021]**
19. Define spurious drug. (02 Marks) **[November 2021]**
20. Define misbranded, adulterated and spurious drugs under Drug and Cosmetics Act and Rules, 1940. (02 Marks) **[January 2021]**
21. Give the specimen label for ophthalmic preparation. (02 Marks) **[January 2021]**
22. Functions of Drugs Consultative Committee. (02 Marks) **[January 2021]**
23. Explain the list of permitted colours. (02 Marks) **[November 2021]**
24. Name the Central Drug Laboratories. (02 Marks) **[November 2021]**
25. Define misbranded drug. (02 Marks) **[July 2022]**
26. Constitution and function of drug consultative committee. (02 Marks) **[July 2022]**

27. Name the licensing authorities as per the Drug and Cosmetics Act 1945. (02 Marks) **[July 2022]**
28. Name the controlling authorities under Drugs and Cosmetics Act, 1940. (02 Marks) **[January 2023]**
29. Describe the qualification, powers and functions of Licensing Authorities under Drug and Cosmetics Act, 1940. (02 Marks) **[May 2023]**
30. Explain the conditions required for obtaining an import licence for drugs under Drugs and Cosmetics Act, 1940. (02 Marks) **[January 2023]**
31. Drugs and Cosmetics Act, 1940. (02 Marks) **[May 2023]**
32. Give the specimen label for ophthalmic preparation. (02 Marks) **[May 2023]**
33. Examples of permitted colors. (02 Marks) **[December 2023]**

UNIT II

Schedules, Licences, Authorities

1. Explain the conditions of import licence and classes of drugs that prohibited to be imported into India. (10 Marks) **[January 2021]**
2. Give the conditions required for grant of licence for the manufacture of drugs specified in schedule C, C1 and X. (10 Marks) **[July 2022]**
3. Repacking licence. (05 Marks) **[July 2022]**
4. Write a note on Schedule N. (05 Marks) **[January 2020]**
5. Explain the conditions for grant of license for retail sale of drugs. (05 Marks) **[January 2020]**
6. Briefly describe the schedule Y requirements for conducting clinical trials in India. (05 Marks) **[January 2020]**
7. Repacking Licence. (05 Marks) **[January 2020]**
8. Describe the procedure and conditions for obtaining a licence for the manufacture of drugs specified in schedule C, C1 and X. (05 Marks) **[January 2021]**
9. Loan licence. (05 Marks) **[January 2021]**
10. Restricted licence. (05 Marks) **[May 2023]**
11. Explain the conditions for grant of manufacturing licence for Schedule C, C1 and X drugs. (05 Marks) **[May 2023]**
12. Explain the conditions for grant of licence for retail sale of drugs. (05 Marks) **[January 2021]**
13. Give the specimen label for Schedule X. (02 Marks) **[January 2021]**
14. Define the following • Schedule T • Schedule M2 • Schedule J • Schedule H. (02 Marks) **[January 2021]**
15. Storage conditions for Schedule X and Veterinary drugs. (02 Marks) **[January 2021]**
16. Define Repacking Licence. (02 Marks) **[January 2021]**
17. Define loan licence and repacking license. (02 Marks) **[January 2020]**
18. Define schedule S, schedule P, schedule T and schedule F. (02 Marks) **[January 2020]**

19. Give the labelling requirements for schedule C and X drugs. (02 Marks) **[January 2020]**
20. Explain Schedule N. (02 Marks) **[November 2021]**
21. Explain Schedule M. (02 Marks) **[July 2022]**
22. Explain Schedule H. (02 Marks) **[July 2022]**
23. Give the condition required for the whole sale of Schedule X drug. (02 Marks) **[July 2022]**
24. Explain schedule T. (02 Marks) **[July 2022]**
25. Explain schedule X. (02 Marks) **[January 2023]**
26. Define schedule G, schedule H, schedule M and schedule N. (02 Marks) **[May 2023]**
27. Define restricted licence. (02 Marks) **[January 2023]**
28. Draw the specimen label for schedule H drug. (02 Marks) **[January 2023]**
29. Define Schedule P and Schedule U. (02 Marks) **[December 2023]**
30. Define Schedule C and C1 and Schedule X with an example. (02 Marks) **[May 2023]**

UNIT III

Pharmacy Act 1948, Medicinal and Toilet Preparation Act 1955, Narcotics Drugs and Psychotropic Substances Act 1985

1. Write in detail about the constitution and functions of the state and joint state pharmacy council.(10 Marks) **[January 2020]**
2. What are the objectives of Pharmacy Act. Explain the constitution and functions of Pharmacy Council of India (PCI) and the procedure for registration of pharmacist. (10 Marks) **[July 2022]**
3. Discuss prohibition, control and regulations under Narcotic Drugs and Psychotropic Substances Act and explain the role of narcotic commissioner. (10 Marks) **[January 2020]**
4. Explain in detail the manufacture of alcoholic preparation in bonded and non-bonded manufactory. (10 Marks) **[January 2021]**
5. Describe the authorities, officers appointed under Narcotic Drugs And Psychotropic Substances Act and write a note on Narcotic Drugs and Psychotropic Substances Consultative Committee.(10 Marks) **[November 2021]**
6. Explain about the manufacture of alcoholic preparation in bonded and non bonded manufactory. (10 Marks) **[November 2021]**
7. Explain offences and penalties under Narcotic Drugs and Psychotropic Substances Act 1985. (05 Marks) **[December 2023]**
8. List out offences and penalties under Narcotic Drugs and Psychotropic Substances Act, 1985. (05 Marks) **[January 2021]**
9. What are conditions required for the registration of pharmacists. (05 Marks) **[November 2021]**

10. Discuss the condition required for the manufacture of Ayurvedic preparation under medicinal and toilet preparations act, 1955. (05 Marks) [**November 2021**]
11. Explain the constitution and function of state pharmacy council. (05 Marks) [**January 2023**]
12. Define patent and proprietary medicines. Explain the labelling and packaging requirements of these medicines for export. (05 Marks) [**January 2023**]
13. Explain the functions and composition of state pharmacy council and joint state pharmacy council. (05 Marks) [**December 2023**]
14. What are the requirements of a non-bonded laboratory. (05 Marks) [**May 2023**]
15. Mention the conditions when names are removed from the first register. (02 Marks) [**May 2023**]
16. Constitution of Pharmacy Council of India (PCI). (02 Marks) [**May 2023**]
17. Export of alcoholic preparations. (02 Marks) [**December 2023**]
18. Production of poppy straw. (02 Marks) [**December 2023**]
19. Name the office for the control and regulation of opium cultivation. (02 Marks) [**January 2023**]
20. Differentiate between State and joint state pharmacy council. (02 Marks) [**January 2023**]
21. Write the objective of pharmacy act 1948. (02 Marks) [**January 2020**]
22. Define pharmacy and drug store. (02 Marks) [**January 2020**]
23. Differentiate outside bond and in bond manufacture of medicinal and toilet preparation.(02 Marks) [**January 2020**]
24. Conditions for removal names from the first register. (02 Marks) [**January 2021**]
25. Define medicinal preparation and toilet preparation. (02 Marks) [**November 2021**]
26. Explain the minimum qualification required for the registration of a pharmacist as per education regulation 1991. (02 Marks) [**November 2021**]
27. Education regulation under Pharmacy Act 1948. (02 Marks) [**November 2021**]

UNIT IV

Drugs and Magic Remedies Act, Prevention and Cruelty to Animals Act 1960, Drugs Price Control Order 2013

1. What are the exempted and prohibited advertisement under drug and magic remedies (Objectionable Advertisements) Act. (05 Marks) [**January 2020**]
2. How is the retail price of a scheduled formulation calculated under Drug Price Control Order, 2013. (05 Marks) [**January 2020**]
3. How are experimental animals required to be handled during and after experiments. (05 Marks) [**January 2021**]
4. What are the offences and penalties as per Prevention of Cruelty to Animals Act. (05 Marks) [**December 2023**]

5. Explain about prohibition of certain advertisements. (05 Marks) [November 2021]
6. What are offences and penalties under Prevention of Cruelty to Animals Act 1960. (05 Marks) [November 2021]
7. Procedure for the maintenance, transfer, acquisition of animals for experiment under Prevention of Cruelty to Animal Act, 1960. (05 Marks) [January 2023]
8. Retail price of formulation. (05 Marks) [November 2021]
9. Explain the penalties of drug and magic remedies act. (05 Marks) [November 2021]
10. Describe the drug price control order. (05 Marks) [July 2022]
11. Write a note on DPCO. (05 Marks) [December 2023]
12. Describe the Drug Price Control Order, 2013. (05 Marks) [January 2023]
13. National fund for controlling drug abuse. (02 Marks) [December 2023]
14. Purpose of national fund for control of drug abuse. (02 Marks) [November 2021]
15. Exempted advertisements from the provisions of Drugs and Magic Remedies Act, 1955. (02 Marks) [January 2021]
16. What are the records required to be maintained under Prevention of Cruelty to Animal Act. (02 Marks) [July 2022]
17. Institutional Animal Ethics committee. (02 Marks) [May 2023]
18. Give few lines on prohibition of certain advertisements. (02 Marks) [January 2023]
19. Members of the Institutional Animals Ethics (IAE) Committee. (02 Marks) [January 2020]
20. Explain the power to suspend or revoke registration under Prevention of Cruelty to Animals Act, 1960. (02 Marks) [January 2023]
21. Explain the calculation of prices of bulk drugs. (02 Marks) [December 2023]
22. Name the exempted advertisements. (02 Marks) [July 2022]
23. Give the national list of essential medicines. (02 Marks) [January 2023]
24. Define advertisement and magic remedies. (02 Marks) [May 2023]

UNIT V

Pharmaceutical Legislations, Code of Pharmaceutical Ethics, Medical Termination of Pregnancy Act, Right to Information Act, Intellectual Property Rights

1. Termination of Pregnancy Act, 1971. (05 Marks) [January 2020]
2. What are the provisions under Medical termination of Pregnancy Act. (05 Marks) [May 2023]
3. Explain the code of ethics of pharmacists in relation to his Trade. (05 Marks) [May 2023]
4. What are the provisions under Medical Termination of Pregnancy Act. (05 Marks) [January 2023]
5. Explain the code of pharmacist in relation to his trade. (05 Marks) [December 2023]
6. Intellectual Property Rights. (05 Marks) [December 2023]

7. Explain the approved places according to Medical Termination of Pregnancy Act. (05 Marks) [**December 2023**]
8. Intellectual property right. (05 Marks) [**July 2022**]
9. Explain the code of ethics of pharmacists in relation to his Job. (05 Marks) [**January 2021**]
10. Information that may be refused under Right to Information Act, 2005. (02 Marks) [**January 2020**]
11. Give the function of Right to Information Act. (02 Marks) [**November 2021**]
12. Information that may be refused under Right to Information Act. (02 Marks) [**May 2023**]
13. Define pharmaceutical code of ethics. (02 Marks) [**July 2022**]
14. Right to Information Act. (02 Marks) [**December 2023**]
15. Mudaliar Committee. (02 Marks) [**December 2023**]
16. Write briefly the code of ethics of pharmacists in relation to medical profession. (02 Marks) [**January 2020**]

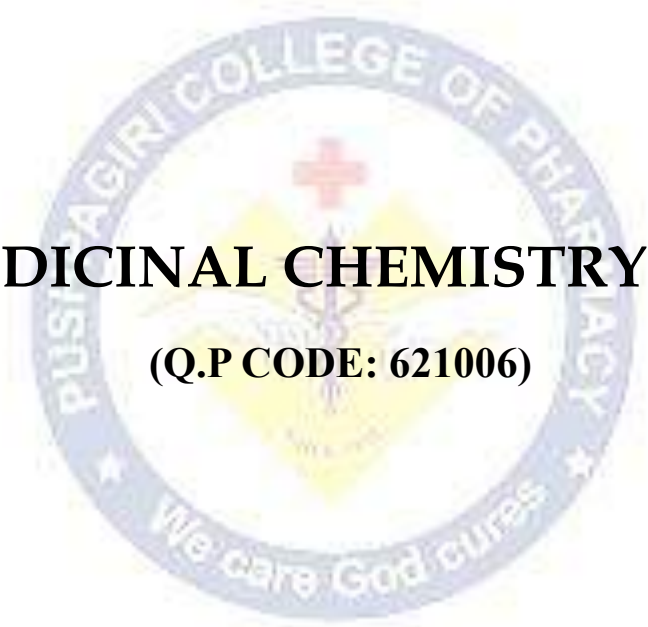




SIXTH SEMESTER B.PHARM

MEDICINAL CHEMISTRY - III

(Q.P CODE: 621006)



UNIT I**Antibiotics**

1. Classify antibiotics based on their chemical nature with examples from each class.(10 Marks) **[July 2023]**
2. Discuss the SAR of Penicillins. (05 Marks) **[July 2023]**
3. Discuss the chemistry mechanism of action and adverse effects of Tetracyclines.(10 Marks) **[Dec 2022]**
4. Discuss the chemical degradation of Penicillin. (05 Marks) **[Dec 2022]**
5. Explain briefly about macrolide antibiotics. (05 Marks) **[Dec 2022]**
6. Discuss the chemistry of aminoglycosides.(02 Marks) **[May 2022]**
7. Explain on beta-lactum antibiotics. (05 Marks) **[Jan 2022]**
8. Explain the chemistry and mechanism of action of tetracyclines. (05 Marks) **[Jan 2022]**
9. What are beta-lactamase inhibitors. (02 Marks) **[Dec 2022, Jan 2022]**
10. Give the structural examples for synthetic penicillins along with their therapeutic role.(02 Marks) **[Jan 2022]**
11. Classify penicillins with structural examples and explain the Structural Activity Relationship (SAR) of penicillins. (10 Marks) **[May 2021]**
12. Explain the mechanism of action and chemical degradation of cephalosporins. (05 Marks) **[May 2021]**
13. What are beta-lactum antibiotics. (02 Marks) **[May 2021]**

UNIT II**Antibiotics, Prodrugs, Antimalarial**

1. Explain the concept of prodrug design. (05 Marks) **[July 2023]**
2. Classify antimalarial drugs with examples. (05 Marks) **[July 2023, Jan 2022, May 2021]**
3. Outline the synthesis and uses of Isoniazid and pamaquine. (05 Marks) **[July 2023]**
4. Discuss the chemistry and uses of monobactams.(02 Marks) **[July 2023, May 2022]**
5. Explain the etiology of malaria. (05 Marks) **[Dec 2022]**
6. Write the structure and uses of a Biguanide. (02 Marks) **[Dec 2022]**
7. Outline the synthesis and mechanism of action of chloroquine. (05 Marks) **[Dec 2022, May 2022]**
8. Discuss the SAR of Quinolines. (05 Marks) **[May 2022]**
9. Write the structure of 8-amino quinoline and 4-amino quinolone. (02 Marks) **[May 2022]**
10. Write the structure of Mefloquine and Proguanil. (02 Marks) **[May 2022]**
11. Outline the synthesis and mechanism of action of pamaquine.(05 Marks) **[Jan 2022]**
12. List the major applications of prodrugs. (02 Marks) **[Jan 2022]**
13. Highlight the important structural requirements for antimalarial activity. (02 Marks) **[Jan 2022]**
14. Write the chemical synthesis of chloramphenicol. (02 Marks) **[Dec 2022, Jan 2022]**
15. Explain the concept of prodrugs. Describe in detail about the pharmaceutical applications of prodrugs. (10 Marks) **[Dec 2022]**

16. . List four important Structural Activity Relationship (SAR) of antimalarial drugs. (02 Marks) [May 2021]

UNIT III

Antitubecular, Uti, Antiviral

1. Outline the synthesis and uses of miconazole and acyclovir.(05 Marks) [July 2023]
2. Write the structure and uses of Pyrazinamide. (02 Marks) [July 2023]
3. Give the structure and uses of Amantidine hydrochloride. (02 Marks) [July 2023]
4. Outline the synthesis of p-amino salicylic acid. (02 Marks) [July 2023]
5. Outline the synthesis of ciprofloxacin. (02 Marks) [July 2023]
6. Enlist the first-line antitubercular drugs. (02 Marks) [July 2023]
7. Classify anti-tubercular drugs with examples. (05 Marks) [Dec 2022]
8. Discuss the SAR of Quinolones. (05 Marks) [Dec 2022, May 2021]
9. Classify antiviral drugs with examples. Outline the synthesis of Acyclovir.(10 Marks) [May 2022]
10. Enlist the commonly used urinary tract anti-infectives. (02 Marks) [May 2022]
11. Explain the chemistry and mechanism of action of antitubercular antibiotics and Discuss the SAR of quinolones. (10 Marks) [Jan 2022]
12. Classify antiviral drugs with structural examples. (05 Marks) [Dec 2022, Jan 2022]
13. Explain the mechanism of action of acyclovir.(02 Marks) [Jan 2022]
14. Give the synthesis, mechanism of action and uses of acyclovir. (05 Marks) [May 2021]
15. Give the structures and uses of following • Ciprofloxacin • Nitrofurantoin. (02 Marks) [May 2021]
16. Outline the synthesis of isoniazid. (02 Marks) [May 2021]

UNIT IV

Antifungal, Anti-Protozoal, Anthelmintic, Sulphonamides

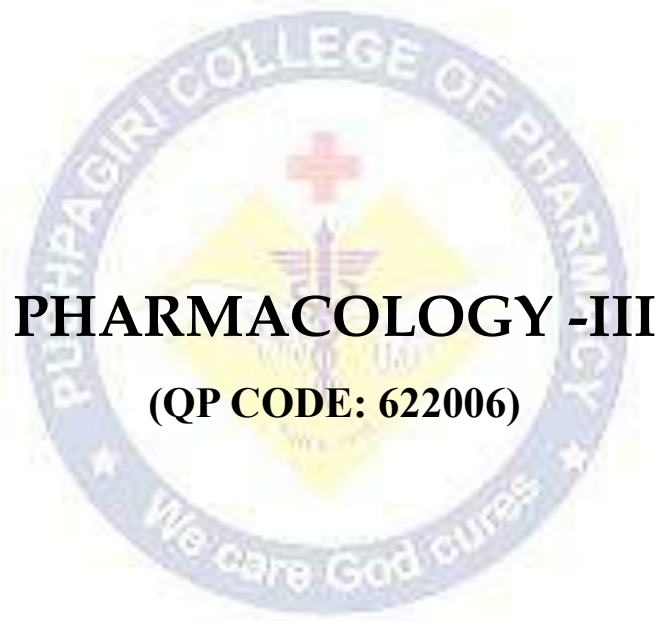
1. Classify sulfonamides and explain the SAR.(10 Marks) [July 2023]
2. Write a note on anthelmintics with examples. (05 Marks) [July 2023]
3. Write the structure of any two synthetic antifungal drugs. (02 Marks) [July 2023]
4. Write the structure and uses of albendazole. (02 Marks) [July 2023]
5. Discuss the mechanism of action of cotrimoxazole. (02 Marks) [July 2023]
6. Outline the synthesis and mechanism of action of trimethoprim. (05 Marks) [Dec 2022]
7. Outline the synthesis and uses of Dapsone and sulfacetamide. (05 Marks) [Dec 2022]
8. Discuss the mechanism of action of anthelmintics. (02 Marks) [Dec 2022]
9. Outline the synthesis of mebendazole. (02 Marks) [Dec 2022]
10. Write the structure of an antifungal antibiotic. (02 Marks) [Dec 2022]
11. Define antiprotozoal drugs with examples. (02 Marks) [Dec 2022]
12. Outline the synthesis and uses of Dapsone and metronidazole. (05 Marks) [May 2022,Jan 2022]

13. Write a short note on anti-protozoal agents with examples. (05 Marks) [May 2022]
14. Classify antifungal agents with examples. (05 Marks) [May 2022]
15. Give the structure of Sulphamethoxazole. Discuss its mechanism of action and uses. (05 Marks) [May 2022]
16. Outline the synthesis of diethyl carbamazine. (02 Marks) [May 2022]
17. Give the structure and uses of tolinaftate. (02 Marks) [May 2022]
18. Outline the synthesis of sulphamethoxazole. (02 Marks) [May 2022]
19. Define anthelmintics with examples. (02 Marks) [May 2022]
20. Give the structure and uses of a folate reductase inhibitor. (02 Marks) [May 2022]
21. Explain the Structural Activity Relationship (SAR) of antibacterial sulphonamides. (05 Marks) [Jan 2022]
22. Give the structure and uses of following • Metronidazole • DEC. (02 Marks) [Jan 2022]
23. Give the structures and uses of • Sulphamethoxazole • Dapsone. (02 Marks) [Jan 2022]
24. Write the chemical synthesis of miconazole. (02 Marks) [Dec 2022, Jan 2022]
25. Antifungal antibiotics. (05 Marks) [May 2021]
26. Enumerate azole antifungal drugs with structures. (02 Marks) [May 2021]
27. Explain the mechanism of action of sulphonamides. (02 Marks) [May 2021]
28. Give the structures and uses of Diethylcarbamazine and Miconazole. (02 Marks) [May 2021]
29. Write the chemical synthesis of dapsone. (02 Marks) [May 2021]

UNIT V

Introduction to Drug Design

1. Explain the concept of combinatorial chemistry and write in detail about pharmacophore modelling. (10 Marks) [Oct 2023]
2. Discuss the applications of QSAR. (05 Marks) [July 2023]
3. Discuss the significance of docking techniques. (02 Marks) [July 2023]
4. Describe the concept and applications of combinatorial chemistry. (10 Marks) [Dec 2022]
5. Outline the various physicochemical parameters used in QSAR based drug design. (10 Marks) [May 2022]
6. Write a note on solution phase synthesis. (05 Marks) [May 2022]
7. Explain about Quantitative Structure-Activity Relationship (QSAR) concept, Hansch analysis and pharmacophore modelling. (10 Marks) [Jan 2022]
8. List any four applications of combinatorial chemistry. (02 Marks) [Jan 2022]
9. Solid-phase combinatorial synthesis. (05 Marks) [May 2021]
10. How the Hammett's parameter is useful in the drug design procedures. (02 Marks) [May 2021]
11. Explain the concept of docking. (02 Marks) [May 2021]



PHARMACOLOGY -III

(QP CODE: 622006)

UNIT I**Pharmacology of Drugs Acting on Respiratory System, Gastrointestinal Tract and Skin**

1. Describe the pharmacology of 5HT₃ receptor antagonist. (05 Marks) [October 2023]
2. Explain the mechanism of emesis and name the drugs used as emetics. (05 Marks) [October 2023]
3. Classify antacids and explain advantages of combination of antacids. (05 Marks) [October 2023]
4. Define expectorants and outline their mechanism of action. (02 Marks) [October 2023]
5. Name the drugs used in the treatment of psoriasis. (02 Marks) [October 2023]
6. Explain the mechanism of action of bronchodilators. (02 Marks) [October 2023]
7. List the drugs used as appetite stimulants and appetite suppressants. (02 Marks) [October 2023]
8. Classify Antiemetics and explain the pharmacology of prokinetics. (10 Marks) [July 2023]
9. Explain the pharmacology of Proton pump inhibitors. (05 Marks) [July 2023]
10. Name the drugs used in management of chronic obstructive pulmonary disease. (02 Marks) [July 2023]
11. Define Carminatives and Digestants with examples. (02 Marks) [July 2023]
12. List the drugs used for the management of wet cough and add a note on Bromhexine. (02 Marks) [July 2023]
13. Classify Anti-ulcer drugs. Explain Proton Pump Inhibitors. 10 Marks [May 2022]
14. Bronchodilators. (05 Marks) [May 2022]
15. Classify anti diarrhoeal drugs. 5 Marks [May 2022]
16. Define digestants with examples. (02 Marks) [May 2022]
17. Name two osmotic laxatives. (02 Marks) [May 2022]
18. Give examples of Leukotriene antagonists. (02 Marks) [May 2022]
19. Oral rehydration salt. (02 Marks) [May 2022]
20. Define Anti-tussives. Explain the drugs used as Anti-tussives. (05 Marks) [January 2022]
21. H₂ receptor blockers. (05 Marks) [January 2022]
22. Prokinetic agents. (05 Marks) [January 2022]
23. Name two Nasal decongestants. (02 Marks) [January 2022]
24. Name two appetite stimulants. (02 Marks) [January 2022]
25. Name two drugs for acne. (02 Marks) [January 2022]
26. Classify Antiulcer drugs and write the pharmacology of anti-secretory agents. (10 Marks) [December 2022]
27. Write the mechanism of cough and classify antitussives. (05 Marks) [December 2022]
28. List the bronchodilators and explain their mechanism of action. 5 Marks [December 2022]
29. Name any four drugs used in the treatment of psoriasis. (02 Marks) [December 2022]
30. Define Nasal decongestants and explain their mechanism with suitable examples. (02 Marks) [December 2022]
31. Define laxatives. Explain the pharmacology of stimulant purgatives. (10 Marks)[May 2021]
32. Treatment of Helicobacter Pylori infection. (05 Marks) [May 2021]

33. Classify Anti asthmatic drugs. Write the mechanism of action of Terbutaline. (05 Marks) **[May 2021]**
34. Give examples for mucolytics. (02 Marks) **[May 2021]**
35. Name any two prokinetics. (02 Marks) **[May 2021]**

UNIT II

Chemotherapy, Antibiotics

1. Explain the Pharmacology of Sulphonamides. (05 Marks) **[October 2023]**
2. Enlist Adverse Drug Reaction and Uses of aminoglycosides. (02 Marks) **[October 2023]**
3. Classify penicillins and describe the mechanism of action and adverse drug reaction of Penicillin G. (05 Marks) **[July 2023]**
4. Write the adverse drug reaction of chloramphenicol. (02 Marks) **[July 2023]**
5. List the antibiotics that have cell wall synthesis inhibiting mechanism. (02 Marks) **[July 2023]**
6. Mechanisms of antibiotic resistance. (05 Marks) **[May 2022]**
7. Tetracycline. (05 Marks) **[May 2022]**
8. What are acid resistant penicillins. Give examples. (02 Marks) **[May 2022]**
9. Give examples for second generation cephalosporins. (02 Marks) **[May 2022]**
10. List the toxicities of Aminoglycosides. (02 Marks) **[May 2022]**
11. Classify semisynthetic penicillins. Explain Beta – lactamase inhibitors. (10 Marks) **[January 2022]**
12. Gentamicin. (05 Marks) **[January 2022]**
13. List two toxicities each of bleomycin and doxorubicin. (02 Marks) **[January 2022]**
14. Therapeutic uses of Fluroquinolones. (02 Marks) **[January 2022]**
15. Name two topical sulphonamides. (02 Marks) **[January 2022]**
16. Side effects of chloramphenicol. (02 Marks) **[January 2022]**
17. Explain the mechanism of action and Adverse Drug Reaction of Erythromycin. (05 Marks) **[December 2022]**
18. Explain the rationale behind the use of beta lactamase inhibitors. (05 Marks) **[December 2022]**
19. List the different classes of Sulphonamides. Enumerate the mechanism of action of Co-trimoxazole. (05 Marks) **[December 2022]**
20. Explain the mechanism and adverse effect of aminoglycosides. (02 Marks) **[December 2022]**
21. Mechanism of action and spectrum of activity of macrolides. 5 Marks **[May 2021]**
22. Cross resistance. (02 Marks) **[May 2021]**
23. What is the ratio of trimethoprim and sulfamethoxazole in co-trimoxazole double strength. (02 Marks) **[May 2021]**
24. Drawbacks of penicillin G. (02 Marks) **[May 2021]**
25. Give examples for topical aminoglycosides. (02 Marks) **[May 2021]**

UNIT III**Chemotherapy**

1. Describe the life cycle of malarial parasite with schematic representation and categorize the drugs used for the management of malarial infections. (10 Marks) **[October 2023]**
2. Explain the pharmacology of Chloroquine. (05 Marks) **[October 2023]**
3. Classify anti-fungal agents and explain the pharmacology of Ketoconazole. (05 Marks) **[October 2023]**
4. Write the mechanism of action of Dapsone. (02 Marks) **[October 2023]**
5. Enumerate the first line drugs for tuberculosis and explain the mechanism of action of Isoniazid. (02 Marks) **[October 2023]**
6. Explain the mechanism of action of Zidovudine. (02 Marks) **[October 2023]**
7. Discuss the pharmacology of drugs used in first line therapy for tuberculosis management. (10 Marks) **[July 2023]**
8. Classify antileprotic agents. Write the mechanism of action and adverse drug reaction of dapsone. (05 Marks) **[July 2023]**
9. Classify antifungal drugs. (02 Marks) **[July 2023]**
10. Write the mechanism of action of mebendazole. (02 Marks) **[July 2023]**
11. Metronidazole. (05 Marks) **[May 2022]**
12. Adverse effect of chloroquine. (02 Marks) **[May 2022]**
13. Name two antifungal antibiotics. (02 Marks) **[May 2022]**
14. First line drugs for tuberculosis. (02 Marks) **[May 2022]**
15. Classify Anti- malarial drugs. Discuss their role in the treatment of malaria along with their adverse effects. (10 Marks) **[January 2022]**
16. Classify anti-viral agents. Discuss the mechanism of Nucleoside Reverse Transcriptase Inhibitors. (05 Marks) **[January 2022]**
17. Define the term Lepra reaction. (02 Marks) **[January 2022]**
18. Mention the uses of Terbinafine. (02 Marks) **[January 2022]**
19. Classify Antiviral drugs with suitable examples and explain the pharmacology of Acyclovir. (10 Marks) **[December 2022]**
20. Classify antifungal agents with suitable examples and explain the mechanism of Amphotericin-B. (05 Marks) **[December 2022]**
21. Enumerate systemic amoebicides and write the mechanism of action of metronidazole derivative. (05 Marks) **[December 2022]**
22. Explain the mechanism and uses of Albendazole. (02 Marks) **[December 2022]**
23. Classify Anti-tubercular drugs. Explain the mechanism of action, therapeutic uses, drug interactions and adverse effects of Rifampicin. 10 Marks **[May 2021]**

24. Retroviral protease inhibitors. (05 Marks) [May 2021]
25. Amphotercin B. (05 Marks) [May 2021]
26. Dapsone. (02 Marks) [May 2021]
27. Side effects of Metronidazole. (02 Marks) [May 2021]

UNIT IV


Chemotherapy, Immunopharmacology

1. Classify antimetabolites and explain the mechanism and ADR of folate Antagonist. (05 Marks) [October 2023]
2. Define biosimilars. What are the advantages of biosimilars. (02 Marks) [October 2023]
3. Name the four drugs which bind avidly to tubulin and cause arrest of cells in metaphase. (02 Marks) [October 2023]
4. Explain the role of topoisomerase inhibitors in cancer management with suitable examples. (05 Marks) [July 2023]
5. Describe the role of specific T-cell inhibitors as Immunosuppressants. (05 Marks) [July 2023]
6. Explain the mechanism of action and Adverse Drug Reaction of methotrexate. (05 Marks) [July 2023]
7. Classify Immunosuppressants with suitable examples. (02 Marks) [July 2023]
8. Name the drugs used in sexually transmitted diseases. (02 Marks) [July 2023]
9. Classify Anti-cancer drugs. Explain the mechanism of action and the adverse effects of Anti metabolites. (10 Marks) [May 2022]
10. Chemotherapy of Sexually Transmitted Diseases. (05 Marks) [May 2022]
11. Immunostimulants. (05 Marks) [May 2022]
12. What is the role of antimetabolites in cancer. (05 Marks) [January 2022]
13. Immunosuppressants. (05 Marks) [January 2022]
14. Write the applications of Biosimilars. (02 Marks) [December 2022]
15. List two clinically important Immunostimulants and their uses. (02 Marks) [December 2022]
16. List the drugs used in urinary tract infections. (02 Marks) [December 2022]
17. Classify topoisomerase inhibitors with suitable examples. (02 Marks) [December 2022]
18. Explain the mechanism of vincristine. (02 Marks) [December 2022]
19. Cyclosporine. (05 Marks) [May 2021]
20. What is the role of vinca alkaloids in treatment of cancer. (05 Marks) [May 2021]
21. General toxicity of anticancer drugs. (02 Marks) [May 2021]
22. Give examples for treatment of Sexually transmitted diseases. (02 Marks) [May 2021]

UNIT 5- GENE THERAPY

1. Classify various types of Gene therapy techniques and discuss the processes involved in ex vivo and in vivo gene transfer techniques. (10 Marks) [**October 2023**]
2. Explain gene therapy and its applications. (05 Marks) [**July 2023**]
3. Outline the disadvantages of gene therapy. (02 Marks) [**July 2023**]
4. Two uses of Gene therapy. (02 Marks) [**January 2022**]
5. Outline the applications of stem cell therapy. (02 Marks) [**December 2022**]





HERBAL DRUG TECHNOLOGY
(QP CODE: 623006)

The logo of Puthpagiri College of Pharmacy is circular with a blue border. Inside the border, the text "PUTHPAGIRI COLLEGE OF PHARMACY" is written in white at the top, and "We care God cures" is written in white at the bottom, separated by two small white stars. In the center of the logo is a yellow shield containing a red cross at the top and a purple caduceus (a staff with two snakes and wings) below it.

UNIT I**Herbs as Raw Materials, Biodynamic Agriculture**

1. Explain about processing of herbal raw materials .-10 Marks [Oct 2023]
2. Explain good agricultural practices in cultivation of medicinal plants.-10 Marks [May 2021,Jan 2022]
3. Selection, identification and authentication of herbal materials -5 Marks [Oct 2023]
4. What is organic farming -5 Marks [Oct 2023]
5. Biopesticides and its advantages- 5 Marks [Dec 2022]
6. Biopiracy -5 Marks [Dec 2022]
7. Explain different pests and pest control methods -5 Marks [May 2022]
8. Explain about processing of herbal raw materials -5 Marks [May 2021]
9. Define herbs -2 Marks [Oct 2023]
10. Define Herbal medicine -2 Marks [Oct 2023]
11. Biopesticides with examples-2 Marks [Oct 2023]
12. Biodynamic agriculture -2 Marks [Jan 2023]
13. Define pests-2 Marks [Dec 2022]
14. Importance of organic farming -2 Marks [May 2022]
15. Processing of herbal raw materials -2 Marks [May 2022]
16. How Ayurveda medicine is different from herbal medicine-2 Marks [Jan 2022]
17. Bioinsecticide -2 Marks [May 2021]

UNIT II**Basic Principles Involved in Ayurveda, Siddha, Unani and Homeopathy B) Preparation and Standardization of Ayurvedic Formulations**

1. Explain basic principles involved in Ayurveda, and Homeopathy.- 10 Marks [May 2021,Oct 2023]
2. Preparation and standardization of Ayurvedic formulations Aristas ans Asawas .- 10 Marks [May 2022, Dec 2022]
3. Preparation and standardization of Ayurvedic formulations Aristas - 5 Marks [Oct 2023]
4. Basic principles involved in Siddha- 5 Marks [May 2022, Dec 2022]
5. Preparation and standardization of Ayurvedic formulations Ghutika- 5 Marks [Dec 2022]
6. Preparation and standardization of Ayurvedic formulations Lehya - 5 Marks [Jan 2022]
7. Define Ghutiks and Bhasma- 2 Marks [Oct 2023]
8. Define Bhasma and Churna - 2 Marks [May 2022]
9. Define Aurveda and Unani systems of medicine - 2 Marks [May 2022]
10. Name different types of Ayurvedic dosage forms- 2 Marks [May 2022]
11. Define Aristas and Asavas - 2 Marks [May 2021]
12. Basic principles involved in Siddha - 2 Marks [May 2021]

UNIT III**Nutraceuticals**

1. Health benefits and role of Nutraceuticals in ailments like Irritable bowel syndrome. - 10 Marks **[Dec 2022]**
2. What are different drug interactions. Explain side effects and interactions of Ginseng, Garlic and Kava-kava - 10 Marks **[Dec 2022]**
3. Give an account of garlic and honey as health food - 5 Marks **[Oct 2023]**
4. Side effects and interactions of Ginseng - 5 Marks **[Oct 2023]**
5. Fenugreek, chicory and amla as health food - 5 Marks **[Dec 2022]**
6. Health benefits of garlic and ginger - 5 Marks **[May 2022]**
7. Describe any 2 official herbs used as nutraceuticals - 5 Marks **[Jan 2022]**
8. Give an account of ginger and amla as health food - 5 Marks **[May 2021]**
9. Give an account of spirulina as health food - 2 Marks **[Oct 2023]**
10. Cosmetic uses of Henna and Aloe - 2 Marks **[Oct 2023]**
11. Side effects and interactions of pepper - 2 Marks **[Oct 2023]**
12. Define nutraceuticals. - 2 Marks **[May 2021, Dec 2022]**
13. Health benefits of Ashwagandha - 2 Marks **[Jan 2022]**
14. Side effects and interactions Ephedra - 2 Marks **[May 2021]**
15. Green Tea - 2 Marks **[May 2021]**

UNIT IV**Herbal Cosmetics**

1. Various natural excipients used in herbal cosmetics - 10 Marks **[Oct 2023]**
2. Write about bleaching agents used in herbal cosmetics - 5 Marks **[Oct 2023]**
3. Write about protective agents used in herbal cosmetics - 5 Marks **[Dec 2022]**
4. Method of preparation of Herbal syrups and Herbal mixtures - 5 Marks **[Dec 2022]**
5. Herbal sweeteners - 5 Marks **[Dec 2022]**
6. Skin care products used in herbal cosmetics - 5 Marks **[May 2022]**
7. Herb drug interactions of Kava-kava - 5 Marks **[May 2022]**
8. Write about phytosomes - 5 Marks **[Jan 2022]**
9. Hair care products used in herbal cosmetics - 5 Marks **[Jan 2022]**
10. Write about antioxidants used in oral hygiene products - 5 Marks **[Jan 2022]**
11. Natural flavours and perfumes as excipients - 5 Marks **[Jan 2022]**
12. Herbal excipients - 5 Marks **[May 2021]**
13. Source and uses of Turmeric - 2 Marks **[Oct 2023]**
14. Write about phytosomes and its significance - 2 Marks **[Oct 2023]**

15. Natural colourants in herbal products. - 2 Marks [Dec 2022]
16. Viscosity builders - 2 Marks [Jan 2022]

UNIT V

Evaluation of Drugs: Who & Ich Guidelines for the Assessment Of Herbal Drugs, Stability Testing Of Herbal Drugs. Patenting and Regulatory Requirements of Natural Products

1. Patenting aspects of Traditional Knowledge and Natural Products - 10 Marks [Oct 2023]
2. Stability testing of Herbal drugs- 10 Marks [Dec 2022]
3. WHO guidelines for the assessment of herbal drugs- 10 Marks [May 2021]
4. Case study of Neem -5 Marks [May 2022]
5. Stability testing of Herbal drugs -5 Marks [May 2022]
6. ICH guidelines for the assessment of herbal drugs -5 Marks [Jan 2022]
7. Case study of turmeric -5 Marks [May 2021]
8. Benefits of patenting -2 Marks [Jan 2023]
9. Define patent - 2 Marks [Dec 2022]
10. Define Farmer's Right - 2 Marks [May 2022]
11. Bioprospecting- 2 Marks [Jan 2022]
12. Define IPR - 2 Marks [May 2021]

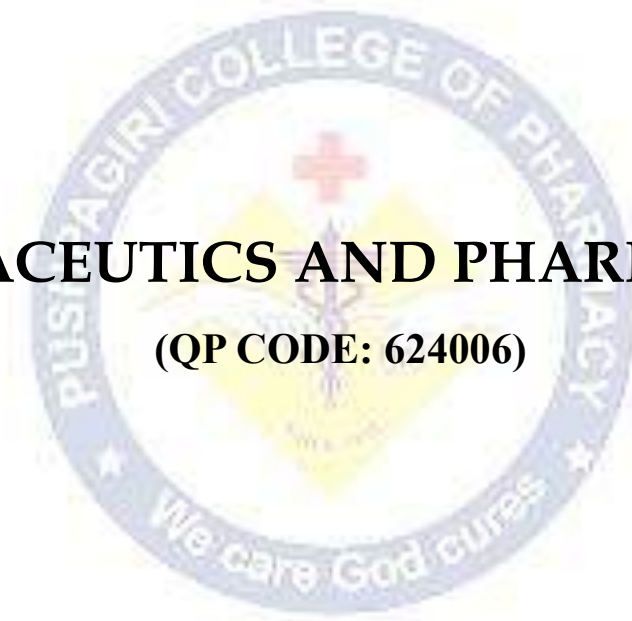
UNIT IV

General Introduction to Herbal Industry Herbal Drugs Industry. Good Manufacturing Practice of Indian Systems of Medicine

1. Classify plant based industries and institutions involved in work on medicinal and aromatic plants in India. - 10 Marks [Jan 2022, Oct 2023]
2. Give a brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India. - 10 Marks [May 2021]
3. Write Components of GMP (Schedule- T) and its objectives - 5 Marks [Jan 2022, Oct 2023]
4. Objectives of GMP - 2 Marks [Dec 2022, May 2023]
5. Schedule Z - 2 Marks [May 2021]

BIOPHARMACEUTICS AND PHARMACOKINETICS

(QP CODE: 624006)



UNIT I**Introduction to biopharmaceutics [Absorption]**

1. Elaborate the mechanism of drug absorption. (10 Marks) **(Oct 2023)**
2. Explain Danckwerts model and interfacial barrier model. (05 Marks) **(Oct 2023)**
3. pH partition hypothesis and its limitations. (05 Marks) **(Oct 2023)**
4. Explain protein binding of drug. Write a note on kinetics of protein-drug binding. (05 Marks) **(Oct 2023)**
5. Define biopharmaceutics and pharmacokinetics. (02 Marks) **(Oct 2023)**
6. Describe the significance of volume of distribution. (02 Marks) **(Oct 2023)**
7. Define drug absorption. Explain various mechanisms of drug absorption. 10 Marks **(July 2023)**
8. Explain on patient-related factors affecting drug absorption. (05 Marks) **(July 2023)**
9. Explain the apparent volume of drug distribution. (02 Marks) **(July 2023)**
10. Explain plasma protein binding. (02 Marks) **(July 2023)**
11. Explain the factors affecting protein-drug binding. Elaborate on the clinical significance of the same. (10 Marks) **(Dec 2022)**
12. Classify the mechanism of drug absorption from GIT. Explain vesicular transport. (05 Marks) **(Dec-2022)**
13. Describe the diffusion layer model and Noyes Whitney equation. (05 Marks) **(Dec-2022)**
14. Apparent and real volume of distribution. (02 Marks) **(Dec 2022)**
15. Scatchard plot in kinetics of protein binding. (02 Marks) **(Dec 2022)**
16. Classification of drugs according to BCS system of classification. (02 Marks) **(Dec 2022)**
17. What are the characteristic features of drug binding. (02 Marks) **(May 2022)**
18. Draw Scatchard plot for protein drug binding. (02 Marks) **(May 2022)**
19. Explain the role of tissue binding of drugs. (02 Marks) **(May 2022)**
20. Define polymorphism and pseudo polymorphism. (02 Marks) **(May 2022)**
21. How are drugs classified under BCS (Biopharmaceutical Classification System). (02 Marks) **(May 2022)**
22. Elaborate the physicochemical properties of the drug affecting drug absorption. (10 Marks) **(May 2022)**
23. Describe diffusion layer model/film theory. (05 Marks) **(May 2022)**
24. Elaborate the limitations of pH partition hypothesis. (05 Marks) **(May 2022)**
25. Explain the factors affecting the distribution of drugs. (05 Marks) **(May 2022)**
26. Volume of drug distribution and its significance. (05 Marks) **(Jan-2022)**
27. Explain the clinical significance of protein binding of drugs. (05 Marks) **(Jan-2022)**
28. Differentiate passive and active transport mechanisms. (02 Marks) **(Jan-2022)**
29. Biopharmaceutical classification system. (02 Marks) **(Jan-2022)**
30. Explain the kinetics of plasma protein binding of drugs and write briefly on its clinical significance. (10 Marks) **(May 2021)**

31. Explain the role of polymorphism and pseudo-polymorphism on drug availability. (05 Marks) (May 2021)

UNIT II

Biotransformation /Elimination/Bioavailability & Bioequivalence

1. Explain the non-renal route of excretion. (05 Marks) (Oct 2023)
2. Two methods to determine AUC. (05 Marks) (Oct 2023)
3. Describe the enhancement of bioavailability through pharmaceutical approach. (05 Marks) (Oct 2023)
4. Draw a typical plasma concentration-time profile. (02 Marks) (Oct 2023)
5. Different levels of IVIVC. (02 Marks) (Oct 2023)
6. What are the types of compendial dissolution apparatus and their application. (02 Marks). (Oct 2023)
7. Classification of drug according to BCS classification systems. (02 Marks) (Oct 2023)
8. Define clearance and therapeutic index. (02 Marks) (Oct 2023)
9. Why phase I are called functionalization reactions. (02 Marks) (Oct 2023)
10. Define renal excretion of drugs. Explain the factors affecting the renal excretion of drugs. (10 Marks) (July 2023)
11. Explain the effect of urine pH and urine flow rate on renal excretion of drugs and how can they be used to treat drug intoxication. (05 Marks) (July 2023)
12. Explain the methods for the enhancement of bioavailability. (05 Marks) (July 2023)
13. Describe the physiological barriers of drug distribution. (05 Marks) (July 2023)
14. Define bioavailability and bioequivalence. (02 Marks) (July 2023)
15. Write any one method for determination of AUC. (02 Marks) (July 2023)
16. Explain the various levels of IVIVC. (02 Marks) (July 2023)
17. Cytochrome p-450 oxidation-reduction cycle in phase – 1 biotransformation reaction. (02 Marks) (July 2023)
18. Explain the key features of any one official apparatus for dissolution studies. (02 Marks) (July 2023)
19. Explain the concept of clearance. (02 Marks) (Dec 2022)
20. Explain bioequivalence studies. (02 Marks) (Dec 2022)
21. Explain any one method to determine AUC. (02 Marks) (Dec 2022)
22. Describe any two pharmacodynamics parameters. (02 Marks) (Dec 2022)
23. Factors affecting renal excretion of drugs. (05 Marks) (Dec-2022)
24. Elaborate on in-vitro *invivo* correlation. (05 Marks) (Dec-2022)
25. Methods to enhance bioavailability. (05 Marks) (Dec-2022)
26. What are the characteristic features of acetylation. (02 Marks) (Dec 2022)
27. Explain the role of cytochrome p-450 enzyme in oxidative reactions. (02 Marks) (May 2022)
28. Glutathione conjugates are not detectable in urine. Why. (02 Marks) (May 2022)
29. Describe elimination half-life apparent volume of distribution and clearance in detail. (05 Marks) (May 2022)

30. Define renal excretion of drugs. Explain the factors affecting renal excretion of drugs.(10 Marks) **(Jan-2022)**
31. Explain enterohepatic cycling of drugs. What is its significance on the excretion of drugs. (05 Marks) **(Jan-2022)**
32. Explain in-vitro and in-vivo correlation. (05 Marks) **(Jan-2022)**
33. Explain the key features of any one official apparatus for dissolution studies.(02 Marks) **(Jan-2022)**
34. Define biotransformation.(02 Marks) **(Jan-2022)**
35. Define bioavailability and bioequivalence. (02 Marks) **(Jan-2022)**
36. Define elimination half-life.(02 Marks) **(Jan-2022)**
37. Describe Biotransformation. Explain the phase II biotransformation reactions.(10 Marks) **(May 2021)**
38. Explain the single dose Latin square cross over design for bioequivalence studies. What are the limitations of this method. (05 Marks) **(May 2021)**
39. Absolute and relative bioavailability. (02 Marks) **(May 2021)**
40. Write in brief non-renal routes of drug excretion. (02 Marks) **(May 2021)**
41. Define AUC and write the methods used in the determination of AUC.(02 Marks) **(May 2021)**
42. Explain the significance of V_d (apparent volume of distribution) of different drug. (02 Marks) **(May 2021)**
43. Define elimination half-life.(02 Marks) **(May 2021)**

UNIT III

Pharmacokinetics

1. Elaborate on the compartment models and their types. (05 Marks) **(Oct 2023)**
2. Write briefly on physiologic models. What are the advantages over compartment models.(05 Marks) **(July 2023)**
3. Explain extraction ratio.(02 Marks) **(July 2023)**
4. Mention the advantages of urinary excretion data in the analysis of pharmacokinetic system.(02 Marks) **(July 2023)**
5. Explain the kinetics of one compartment open model extravascular administrations and explain the calculation of different kinetic parameters. (10 Marks) **(Dec 2022)**
6. Describe the Wagner Nelson method for calculation of K_a . (05 Marks) **(Dec-2022)**
7. Explain non-compartmental analysis. (02 Marks) **(Dec 2022)**
8. What is the influence of K_a , K_E , on C_{max} , t_{max} and AUC. (02 Marks) **(May 2022)**
9. Flip flop phenomenon. (02 Marks) **(May 2022)**
10. Describe the criteria for obtaining valid urinary excretion data. (05 Marks) **(May 2022)**
11. Elaborate the sigma minus method to estimate K_E from urinary excretion data. (05 Marks) **(May 2022)**
12. Explain the kinetics of one compartment open model through extravascular administration. (10 Marks) **(May 2022)**

13. Explain the method of residuals to determine the absorption rate constant for a drug. Which follows one compartment open model extra vascular administration. (05 Marks) **(Jan-2022)**
14. Explain the concept of non-compartmental analysis and give its advantages and limitations. (05 Marks) **(Jan-2022)**
15. Define pharmacokinetic terms V_d , $t_{1/2}$, AUC, CL_T and MRT. (05 Marks) **(Jan-2022)**
16. Explain extraction ratio. (02 Marks) **(Jan 2022)**
17. Explain the sigma minus method for estimating K_E from urinary excretion data following one-compartment open model. (02 Marks) **(Jan-2022)**
18. Explain physiological modeling. (05 Marks) **(Jan-2022)**
19. Define the term clearance and explain the concept. (05 Marks) **(May 2021)**
20. Explain how elimination rate constant K_E and apparent volume of distribution (V_d) can be determined from a first order plot of plasma drug concentration with time for a drug following one compartment open model after extravascular administration. (05 Marks) **(May 2021)**
21. Explain in brief the sigma minus method. (02 Marks) **(May 2021)**
22. Differentiate between compartment modeling and physiological modeling. (02 Marks) **(May 2021)**
23. Explain the significance of loading dose with I.V infusion. (02 Marks) **(May 2021)**

UNIT –IV

Multicompartment Models

1. Explain the kinetics of two compartment open model IVbolus administration.(10 Marks) **(Oct 2023)**
2. Explain the significance of a loading dose in a multiple-dosage regimen. Derive expressions for loading dose and maintenance dose. (05 Marks) **(July 2023)**
3. What do you understand by the ‘Two compartment open model’. Draw and explain the plasma drug level curve obtained after the administration of an I.V bolus of a drug following two compartment model. (05 Marks) **(July 2023)**
4. Explain loading dose and maintenance dose. (02 Marks) **(Jan-2022)**
5. Describe the pharmacokinetics of intravenous multiple dosage regime –one compartment open model. (05 Marks) **(May 2021)**
6. Multi-compartment model. (05 Marks) **(May 2021)**
7. What do you understand by a ‘Two compartment model’. (02 Marks) **(May 2021)**

UNIT V

Non Linear Pharmacokinetics

1. State Michaelis-Menten equation. (02 Marks) **(Oct 2023)**
2. Any two causes of non-linearity. (02 Marks) **(Oct 2023)**
3. Factors causing non-linearity in pharmacokinetics. (02 Marks) **(July 2023)**

4. Factors causing non-linearity in pharmacokinetics. (02 Marks) **(Dec 2022)**
5. State Michaelis Menton equation and explain its significance. (05 Marks) **(Dec-2022)**
6. Michaelis-Menten equation. (02 Marks) **(May 2022)**
7. Describe the causes for non-linearity. (05 Marks) **(May 2022)**
8. Explain non-linear pharmacokinetics. What are the factors causing non-linearity? Explain the Michaelis – Menten method of estimating parameters.(10 Marks) **(Jan-2022)**
9. Explain the causes of non-linearity of pharmacokinetics. (05 Marks) **(May 2021)**
10. Michaelis – mention method of estimating parameters. (02 Marks) **(May 2021)**



PHARMACEUTICAL BIOTECHNOLOGY
(QP CODE: 625006)



UNIT I

1. Discuss in detail about types of enzyme immobilization techniques and their advantages and disadvantages. (10 marks) **(Oct 2023)**
2. Production of Lipase. (05 marks) **(Oct 2023)**
3. Explain in brief about protein engineering. (05 marks) **(Oct 2023)**
4. Applications of biosensors in pharmaceutical industry. (05 marks) **(Oct 2023)**
5. Any two applications of biotechnology in pharmaceutical sciences. (02 marks) **(July 2023)**
6. Discuss briefly the different methods of enzyme immobilizations. (05 marks) **(July 2023)**
7. Define Biosensors. Discuss different types of biosensors in pharmaceutical industries.(05 marks) **(July 2023)**
8. Applications of biosensors. (02 marks) **(Dec 2022)**
9. Explain the different methods of protein engineering. (05 marks) **(Dec 2022)**
10. Define enzymes. Describe the general consideration to be followed for industrial production of enzymes. Write about production of amylase. (10marks) **(Dec 2022)**
11. Genetic engineering.(02 marks) **(May 2022)**
12. Define biotechnology. Mention any two applications in pharmaceutical sciences. (02 marks) **(May 2022)**
13. Biosensors. (02 marks) **(Jan 2022) (May 2022)**
14. Define enzyme immobilization. (02 marks) **(Jan 2022).**
15. Production of protease. (05 marks) **(Jan 2022)**
16. Biosensors and its different types. (05 marks) **(May 2021)**
17. Define Immunoglobulin. (02 marks) **(May 2021)**
18. Applications of immobilized enzymes. (02 marks) **(May 2021)**
19. Name the microbes used for the production of protease enzyme. (02 marks) **(May 2021)**

UNIT II

1. Mutations. (02 marks) **(Oct 2023)**
2. DNA Ligase.(02 marks) **(Oct 2023)**
3. PCR.(02 marks) **(Oct 2023)**
4. Steps involved in PCR (Polymerase Chain Reaction). (02 marks) **(July 2023)**
5. Discuss the types of mutations. (05 marks) **(July 2023)**
6. Production of interferon by rDNA technology. (05 marks) **(July 2023)**
7. Explain the different types of Immunoglobulin.(05 marks) **(July 2023)**
8. Define Hybridoma technology. Explain the production and applications of monoclonal antibodies. (10 marks) **(July 2023)**
9. Gene expression.(02 marks)**(Dec 2022)**
10. Explain PCR (Polymerase Chain Reaction). (02 marks) **(Dec 2022)**

11. Cloning vectors with an example. (02 marks) **(Dec 2022)**
12. Recombinant Hepatitis B vaccine. (05marks) **(Dec 2022)**
13. Plasmids. (02 marks) **(May 2022)**
14. Explain the production of insulin hormone by rDNA technology. (05 marks) **(May 2022)**
15. Write in detail about PCR technique. (05 marks) **(May 2022)**
16. Discuss in detail about production of Monoclonal antibodies by hybridoma technology. (10 marks) **(May 2022)**
17. Restriction endonucleases. (02 marks) **(Jan 2022)**
18. Write in detail on mechanisms and significance of Hypersensitivity reactions. (10 marks) **(Jan 2022)**
19. Define rDNA technology. Discuss in detail about the steps of rDNA technology.(10 marks) **(Jan 2022)**
20. Plasmid. (02 marks) **(May 2021)**
21. Use of restriction endonuclease.(02 marks) **(May 2021)**
22. Explain the basic principle of genetic engineering. (05 marks) **(May 2021)**
23. Describe the steps involved in PCR (Polymerase Chain Reaction) technique. (05 marks) **(May 2021)**

UNIT III

1. Immunoglobulins. (02 marks) **(Oct 2023)**
2. Define hypersensitivity. (02 marks) **(Oct 2023)**
3. Dried Plasma. (02 marks) **(Oct 2023)**
4. Antitoxins. (02 marks) **(Oct 2023)**
5. Differentiate between humoral and cell mediated immunity with examples. (05 marks) **(Oct 2023)**
6. Structure and role of MHC complex in immunity. (05 marks) **(Oct 2023)**
7. Discuss about the general preparation methods of toxoids with examples. (05 marks) **(Oct 2023)**
8. Name the organism for the production of Small pox vaccine and BCG Vaccine. (02 marks) **(July 2023)**
9. Explain innate immunity. (02 marks) **(July 2023)**
10. Examples of anticoagulants used for collection of whole human blood. (02 marks) **(July 2023)**
11. Briefly explain type I hypersensitivity reactions. (02 marks) **(July 2023)**
12. Define Immunostimulants. (02 marks) **(July 2023)**
13. Classify toxin. Discuss the preparation of Diphtheria toxoid. (05 marks) **(July 2023)**
14. Define MHC. (Major Histocompatibility Complex) (02 marks) **(Dec 2022)**
15. Types of hypersensitivity reactions. (02 marks) **(Dec 2022)**
16. Different types of Immuno stimulants. (05 marks) **(Dec 2022)**
17. Give an example for attenuated and killed bacterial vaccine. (02 marks) **(Dec 2022)**
18. Plasma substitutes. (05 marks) **(Dec 2022)**
19. Explain the method in the production of monoclonal antibody by hybridoma technology. (05 marks) **(Dec 2022)**
20. Differentiate between Humoral immunity and Cell mediated immunity. (05 marks) **(Dec 2022)**

21. Storage condition of any two bacterial vaccines. (02 marks) **(May 2022)**
22. Any one Toxoid. (02 marks) **(May 2022)**
23. Differentiate between humoral and cell mediated immunity with examples. (05 marks) **(May 2022)**
24. Explain the general method of preparation of any one viral vaccine with examples. (05 marks) **(May 2022)**
25. With the help of neat labelled diagram explain about structure of immunoglobulins and its classification. (05 marks) **(May 2022)**
26. Immune suppression. (02 marks) **(Jan 2022)**
27. Explain any one toxoid production with example. (02 marks) **(Jan 2022)**
28. With the help of neat labelled diagram explain about structure of immunoglobulin and its classification. (05 marks) **(Jan 2022)**
29. Explain the general method of preparation of any one bacterial vaccine with examples. (05 marks) **(Jan 2022)**
30. Differentiate between humoral and cell mediated immunity with examples. (05 marks) **(Jan 2022)**
31. Define Vaccine. Explain the general method of preparation of any one viral vaccine with suitable examples. **(10 marks) (May 2021)**
32. Define MHC. (Major Histocompatibility Complex) Explain its structure and functions. (05 marks) **(May 2021)**
33. Outline the general storage and stability conditions for official vaccines. Give the conditions for two official vaccines. (05 marks) **(May 2021)**
34. Types of immunity. (02 marks) **(May 2021)**
35. Give examples of two immuno suppressants. (02 marks) **(May 2021)**

UNIT IV

1. Define microbial biotransformation. (02 marks) **(Oct 2023)**
2. ELISA. (02 marks) **(Oct 2023)**
3. Write in detail about gene transfer mechanism by conjugation. (05 marks) **(Oct 2023)**
4. Types of ELISA. (02 marks) **(July 2023)**
5. Define transduction. (02 marks) **(July 2023)**
6. Write in detail about gene transfer mechanism by conjugation. (05 marks) **(July 2023)**
7. Define Transposons. (02 marks) **(Dec 2022)**
8. Explain briefly the western and southern blotting techniques. (05 marks) **(Dec 2022)**
9. Define microbial biotransformations. (02 marks) **(May 2022)**
10. Dried plasma. (02 marks) **(May 2022)**
11. Conjugation. (05 marks) **(May 2022)**
12. Southern blotting. (05 marks) **(May 2022)**
13. Write in detail about gene transfer mechanism by transduction. (05 marks) **(May 2022)**

14. Write in detail about gene transfer mechanism by transformation. (05 marks) **(Jan 2022)**
15. Define microbial biotransformation. (02 marks) **(Jan 2022)**
16. Transposons. (02 marks) **(Jan 2022)**
17. Southern blotting. (02 marks) **(Jan 2022)**
18. Explain about ELISA technique and its applications. (05 marks) **(Jan 2022)**
19. Discuss any five microbial biotransformation reaction with examples. (05 marks) **(May 2021)**
20. Use of western blot technique. (02 marks) **(May 2021)**

UNIT V

1. Name one microorganism used for production of glutamic acid and griseofulvin. (02 marks) **(Oct 2023)**
2. Spargers and types. (02 marks) **(July 2023)**
3. Write about fermentative production and purification of penicillin. **(10 marks) (July 2023)**
4. Classify fermentation methods. (02 marks) **(Dec 2022)**
5. Name microorganisms used for production of citric acid. (02 marks) **(Dec 2022)**
6. Write in detail about the method of collection, production, storage and uses of whole human blood and dried plasma. **(10 marks) (Dec 2022)**
7. Explain in brief about structure and parts of a fermenter with the help of a diagram. (05 marks) **(May 2022)**
8. Write about fermentative production and purification of penicillins. (10 marks) **(May 2022)**
9. Plasma substitutes. (02 marks) **(Jan 2022)**
10. Name any two commonly used microorganisms used for production of vitamin B12 by fermentation. (02 marks) **(Jan 2022)**
11. Explain the collection, processing and storage of whole human blood. (05 marks) **(Jan 2022)**
12. Define fermentation. Explain about the production of penicillin by bioprocess technique. (10 marks) **(May 2021)**
13. Operation of aerobic fermentation. (05 marks) **(May 2021)**
14. Define mutation. Give examples of agents causing mutation. (02 marks) **(May 2021)**
15. Examples of plasma substitutes. (02 marks) **(May 2021)**

PHARMACEUTICAL QUALITY ASSURANCE

(QP CODE: B061623)



UNIT - I**QA and QM, TQM, ICH guidelines, QbD, ISO 9000 & 14000, NABL Accreditation****Important Questions – 10 Marks**

1. Define quality control and write the detailed procedure of NABL accreditation. (July 2023)
2. ISO 9000 and ISO 14000 certification, how to get it and why. (May 2022)
3. Give an account of QSEM with special emphasis on Q- series guidelines. (Jan 2022)
4. Write in detail about principle and procedure of NABL accreditation. (May 2021)

Important Questions – 5 Marks

1. State the procedure to follow to obtain ISO 9000 certification. (Oct 2023)
2. What are the elements and tools of QbD program. (Oct 2023)
3. Discuss the steps involved in the registration of ISO 14000. (July 2023)
4. Discuss in detail about ICH stability testing guidelines. (Dec 2022 & May 2021)
5. Discuss about the principles and procedures of NABL accreditation. (May 2022)
6. Explain the elements and philosophies of total quality management. (May 2022, Jan 2022 & May 2021)
7. Define the term ISO 9000 and give its element and benefits. (Jan 2022)

Important Questions – 2 Marks

1. List out the benefits of ISO 14000. (Oct 2023 & May 2021)
2. Explain photo stability testing guideline. (July 2023 & May 2022)
3. Two important tools of quality of design. (July 2023)
4. What are the elements of Quality by Design program. (Dec 2022)
5. Explain the principle involved in NABL accreditation. (Dec 2022)
6. List out the benefits NABL accreditation. (May 2022)
7. Elements of QbD. (May 2022)
8. Define Quality assurance. (Jan 2022 & May 2021)
9. Good manufacturing practice. (Jan 2022)
10. Explain quality management concept. (May 2021)

UNIT- II**Organization & personnel, Premises, Equipment's & raw materials****Important Questions – 10 Marks**

1. Explain the construction, sanitation, environmental control of premises. (July 2023)
2. Explain on selection, purchase and maintenance of equipment. (Dec 2022)

Important Questions – 5 Marks

1. Explain the utilities and maintenance of sterile areas. **(July 2023)**
2. How will you maintain stores for raw materials. **(July 2023)**
3. Explain the qualification and responsibility of personnel. **(Dec 2022)**
4. Design the layout of premises with reference to tablet section. **(Dec 2022)**
5. How do design the plant layout for sterile area. **(May 2022)**
6. Explain the personnel responsibilities in the organization. **(May 2022)**
7. Design the sterile area for pharmaceutical industry. **(Jan 2022)**
8. How to maintain the raw material purchase specification and store. **(May 2021)**

Important Questions – 2 Marks

1. How to control the contamination in sterile area. **(Oct 2023)**
2. Explain purchase specification. **(Oct 2023, May 2022 & May 2021)**
3. Describe briefly about the plant layout. **(Oct 2023)**
4. Explain the training given to personnel in an organization. **(July 2023)**
5. Give any two purchase specifications of raw materials. **(Dec 2022)**
6. List out the types of equipment qualification. **(May 2022)**
7. Explain HEPA and LAF. **(May 2022)**
8. In grade A sterile how many 0.5-to-5-micron number of particles permitted per cubic equal or above. **(May 2022)**
9. What is the different contamination source in pharma industry. **(Jan 2022)**
10. Explain the types of equipment maintenance. **(Jan 2022)**
11. What are the steps required for the maintenance of sterile area. **(May 2021)**

UNIT- III**(Quality control, Good Laboratory Practice)****Important Questions – 10 Marks**

1. Describe the terminology of GLP and its emphasis on the provisions, organization, personnel, equipment and facility procedures followed in pharmaceutical industries. **(Oct 2023)**
2. Discuss the quality control test for containers and rubber closures used in pharmaceutical industry. **(Dec 2022)**

Important Questions – 5 Marks

1. Give the quality control test for containers and rubber closures. **(Oct 2023)**
2. Explain the protocol for conduct of a nonclinical laboratory study. **(Dec 2022 & May 2022)**
3. Just how to implement the good laboratory practice in new pharma industry. **(May 2022)**
4. Explain the quality control test for secondary packing materials. **(Jan 2022)**

5. Discuss the infrastructural facilities and equipment's required for establishment of non – clinical laboratory. (May 2021)

Important Questions – 2 Marks

1. Explain the types of records. (Oct 2023)
2. Explain the quality control parameters for rubber and closures. (Oct 2023)
3. Explain the different type of secondary packaging materials. (July 2023)
4. Give the importance of GLP adopted in testing facilities operation. (Dec 2022)
5. Brief the disqualification of testing facilities. (Dec 2022)
6. Quality control test for container. (May 2022)
7. Explain the general principles of good laboratory practice. (Jan 2022)

UNIT- IV

Complaints, Document maintenance in pharma industry

Important Questions – 10 Marks

1. Discuss the standard operating procedure and write its significance for manufacturing process. (Jan 2022)
2. Summarize how to handle the complaints and recall in pharma industry as per WHO guidelines. (May 2021)

Important Questions – 5 Marks

1. Explain the evaluation of complaints and waste disposal. (Oct 2023)
2. Explain in detail about the document maintenance in pharmaceutical industry. (Oct 2023)
3. Explain batch formula record. (July 2023)
4. Give in detail about benefits of standard operating procedure. (July 2023)
5. Types of recall. (July 2023)
6. Give a note on Master formula record. (Dec 2022)
7. Quality documentation and how records are distributed. (Jan 2022)
8. Explain the handling of return goods and waste disposal. (May 2021)

Important Questions – 2 Marks

1. Classify the different types of audits. (Oct 2023, May 2022 & May 2021)
2. Explain quality review. (Oct 2023, Jan 2022 & May 2021)
3. Brief any two objectives of documents. (July 2023)
4. Explain the difference between confirmed and non-confirmed complaints. (July 2023)
5. Define quality audit. (Dec 2022)
6. How will you dispose the waste materials from laboratory. (Dec 2022)
7. Explain reports and documents. (Jan 2022)
8. What are the different types of pharmaceutical waste. (Jan 2022)

9. Describe briefly about master formula record. (May 2021)
10. Describe briefly about distribution of records. (May 2021)

UNIT –V

Calibration & Validation, Warehousing

Important Questions – 10 Marks

1. Discuss the concept of Material management and good warehousing practice in detail. (Oct 2023)
2. How to write an effective validation master plan. (May 2022)

Important Questions – 5 Marks

1. Explain briefly about material management. (Oct 2023)
2. Explain the importance and scope of validation. (Oct 2023)
3. Define calibration and how will you calibrate the pH meter. (July 2023)
4. Explain in detail about material management in good warehouse practice. (Dec 2022)
5. What are the qualifications of UV- Visible spectrophotometer. (Dec 2022)
6. Discuss the general principles of calibration qualification and validation. (May 2022 & May 2021)
7. Explain functions of good warehousing practice. (Jan 2022)
8. Explain validation master plan. (Jan 2022)
9. Discuss the steps involved in validation master plan. (May 2021)

Important Questions –2 Marks

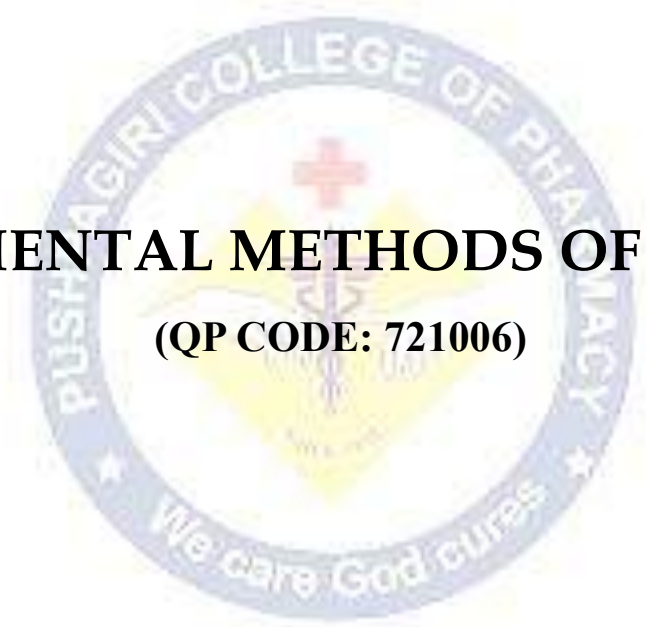
1. At which condition revalidation is required. (Oct 2023)
2. Define installation qualification and operational qualification. (Oct 2023)
3. Explain the different types of validation. (July 2023 & Jan 2022)
4. Give the general principle of qualification. (July 2023)
5. Define operational qualification. (July 2023)
6. How will you prevent contamination and deterioration in warehouse. (July 2023)
7. Differentiate between qualification and validation. (Dec 2022)
8. Explain general principles of calibration. (Dec 2022)
9. Define validation as per USFDA. (May 2022)
10. Give the importance of validation. (Jan 2022)
11. List out the parameters involved in the analytical method validation. (May 2021)

SEVENTH SEMESTER B.PHARM



INSTRUMENTAL METHODS OF ANALYSIS

(QP CODE: 721006)



UNIT -I**UV Visible spectroscopy**

1. With the help of a ray diagram, explain the instrumentation requirements of UV spectrophotometer. Discuss the working of Photomultiplier tube in detail.(10 marks) [**Feb 2023**]
2. What are the ideal properties of a UV detector. (02 Marks) [**Feb 2023**]
3. Explain Isobestic point. (2 Marks)[**June 2023**]
4. Explain simultaneous equation method of multicomponent analysis. (05 Marks) [**Feb 2023**]
5. Explain Beer-Lambert's law. Derive the Beer-Lambert's equation and explain the deviations. (10 marks) [**June 2023**]
6. Differentiate between Bathochromic and hypsochromic shifts with the help of UV Spectra. (02 Marks) [**Feb 2023**]
7. Why photomultiplier tube is considered as the most sensitive detector in UV spectroscopy. (02 Marks) [**July 2022**]
8. Explain the construction and working of a double beam UV spectrophotometer with the help of a neat diagram (10 Marks) [**July 2022**]
9. Explain the different types of spectral shifts observed in UV – visible spectroscopy. (05 Marks) [**July 2022**]
10. Explain the different types of electronic transitions encountered in UV spectroscopy. (05 Marks) [**February 2022**]
11. What is • Electrophoresis • Chromophore • Auxochrome • Bathochromic shift • Hypsochromic shift. (05 Marks) [**February 2022**]
12. Distinguish between hypso chromic and hyper chromic shift. (02 Marks) [October 2021] [**July 2022**]
13. Enlist and explain with example the qualitative applications of UV spectroscopy. (05 Marks) [**July 2022**]
14. Describe the construction and working of a photo multiplier tube. (05 Marks) [**October 2021**]
15. State Beer-Lambert's Law. (02 Marks) [**October 2021**]
16. List out four sources of radiation useful for UV Spectroscopy. (02 Marks) [**October 2021**]
17. List out the four electronic transitions. (02 Marks) [**October 2021**]

Fluorimetry

1. Briefly explain what are the factors that affect intensity of fluorescence.(05 Marks) .[**June 2023**]
2. In fluorescence what is intersystem crossing.(02 marks) [**June 2023**]
3. Why emission wavelength is always longer than absorption wavelength. (02 Marks) [**Feb 2023**]
4. What is Quenching. List the factors responsible for quenching of fluorescence. (02 Marks) [**Feb 2023, July 2022**]
5. Explain the principle of fluorimetry using Jablonskis diagram, explain the various deactivation processes. Explain the applications of fluorimetry. (10 marks) [**February 2022**]
6. Quenching of fluorescence. (02 Marks) [**October 2021**]

UNIT –II**IR spectroscopy**

1. Explain the principle behind IR spectroscopy and the different stretching and bending vibrations.(10 marks)
[June 2023]
2. With the help of neat and labelled diagram, write a note on Golay detector used in IR spectroscopy. (05 marks)
[Feb 2023][Feb 2022]
3. Classify sampling techniques in IR spectroscopy. How to prepare solid samples by pressed pellet technique to obtain IR spectrum. (05 marks)[July 2022]
4. How will you distinguish between primary and secondary amines on an IR spectrum.(05 marks) [February 2022]
5. What is the finger print region of IR Spectrum. (02 Marks) [July 2022,February 2022]
6. Explain the different vibrational modes of molecules. With a neat diagram explain the instrumentation of IR spectrophotometer. .(10 marks) [October 2021]
7. Distinguish between group frequency region and finger print region. (02 Marks) [October 2021]

Flame Photometry

1. Explain any two types of burners used in Flame Photometry. (05 marks).[June 2023]
2. Explain flame atomizers. (02 Marks) [June 2023]
3. Explain the principle behind flame photometry. (05 marks)[February 2022]

Atomic absorption spectroscopy

1. Describe the construction of hollow cathode lamp used in atomic absorption spectroscopy. (10 Marks)
[October 2021, Feb 2023]

Nepheloturbidometry**UNIT –III****Introduction to chromatography**

1. Isocratic elution. (02 Marks) [February 2022]
2. Reverse phase chromatography. (02 Marks) [February 2022]
3. What are the factors affecting the “Chromatographic column efficiency. (02 Marks) [July 2022]
4. Differentiate between normal phase and reversed phase chromatography.(02 Marks) [July 2022]
5. Retention time and retention volume. (02 Marks) [October 2021]
6. Distinguish between isocratic and gradient elution. (02 Marks) [October 2021]

Adsorption and partition column chromatography

1. What are the types of columns used in gas-liquid chromatography. (05 marks)[June 2023]
2. Write the formulae and explain how the Number of Theoretical plate can be determined from a chromatogram.(02 marks) [Feb 2023]
3. Column efficiency.(02 Marks)[June 2023]

4. Explain the term height equivalent of a theoretical plate. (05 marks) [February 2022]

Thin layer chromatography & High performance thin layer chromatography

1. Explain the instrumentation setup of HPTLC. (05 Marks). [June 2023]
2. Mention two methods of detecting spots on a TLC plate. (02 Marks) [June 2023]
3. Why activation of chromatographic plate is important in adsorption TLC. (02 Marks) Feb 2023]
4. Explain with examples the specific and non-specific detection techniques in TLC. (02 Marks) [July 2022]
5. What is two dimensional development in TLC. Explain its importance. (02 Marks) [July 2022]
6. Compare TLC and HPTLC on particle size parameter and thickness of stationary Phase. (02 Marks) [February 2022]
7. Outline the various steps in the preparation of TLC plates in the laboratory. (05 marks)[October 2021]
8. Methods for preparing TLC plates. (02 Marks) [February 2022]

Paper chromatography

1. Discuss the steps involved in Paper chromatography. Discuss the importance of Chamber saturation in paper chromatography. (05 marks) [February 2023]
2. Give two methods of identifying the separated spots in paper chromatography. (02 Marks) [February 2022]
3. What are the grades of paper used in Paper Chromatography. (02 Marks) [October 2021]

Electrophoresis

1. Explain zone electrophoresis. (05 marks)[June 2023]
2. What is the principle of Electrophoresis. Explain the factors in electrophoresis. (05 marks) [Feb 2023]
3. Write the procedure and applications of paper electrophoresis. (05 marks) [Feb 2022]
4. Isoelectric focusing. (02 Marks) [February 2022]
5. Discuss the underlying principle of capillary electrophoresis. (05 marks) [October 2021]

UNIT –IV

Gas chromatography

1. Explain derivatization in Gas chromatography. (02 Marks).[June 2023]
2. Give four examples of detectors used in gas–liquid chromatography. (02 Marks) [June 2023]
3. Explain the construction and working of thermal conductivity detector in GC. (02 Marks) [Feb 2023]
4. Write briefly on carrier gases used in GC. (02 Marks) [Feb 2023]
5. List out four gases commonly used as carrier gas in Gas Chromatography. (02 Marks) [October 2021].
6. Explain the construction and working of gas chromatography with a neat diagram. (10 marks) [Feb 2022]

High performance liquid chromatography (HPLC)

1. State four applications of HPLC. (02 Marks).[June 2023]
2. What is the role of a ultrasonicator in HPLC. (02 Marks) [June 2023]
3. Distinguish between guard column and analytical column. (02 Marks).[June 2023]

4. Differentiate between Isocratic elution and gradient elution in HPLC. (02 Marks) **[Feb 2023]**
5. Explain the working of “Rotary sample valve/loop injection” used for sample injection in HPLC. (02 Marks) **[Feb 2023]**
6. With the help of a schematic diagram, explain the instrumentation of HPLC. Add a note on detectors used in HPLC. (10 marks)**[July 2022]**
7. Discuss the different pumping device, flow control system, sample port and columns employed in HPLC. (10 marks)**[October 2021]**

UNIT -V

1. Explain the principle and types of resins employed in ion exchange chromatography. (05 marks)**[June 2023]**
2. Discuss the mechanism of ion exchange chromatography. Discuss the applications of ion exchange chromatography. (05 marks)**[Feb 2023]**
3. Explain how softening of hard water could be achieved by using “Ion exchange Chromatography (02 Marks) **[July 2022]**
4. Give two applications of ion exchange chromatography. (02 Marks). **[February 2022]**
5. Give two examples of cation exchange resins and two examples of anion exchange resins. (02Marks) **[February 2022]**
6. Explain the mechanism of ion exchange as applied to chromatography (05 marks) **[October 2021]**

Gel filtration chromatography

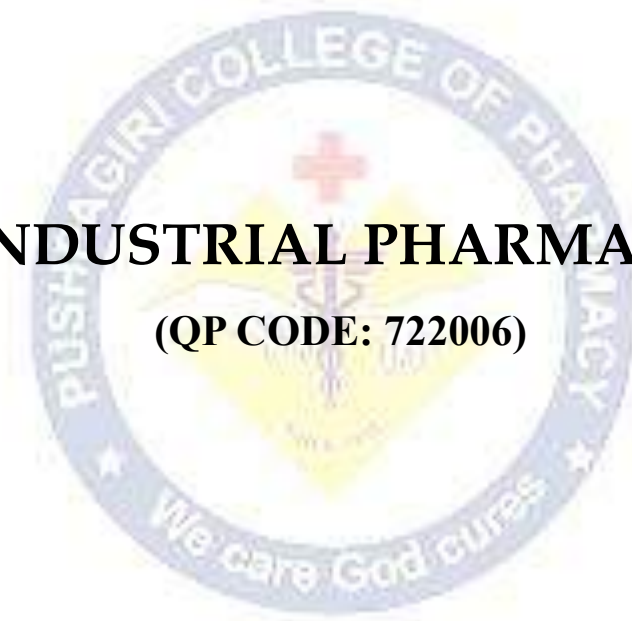
1. Explain on the stationary and mobile phases used in gel chromatography. (05 marks)**[June 2023]**
2. Explain the principle, stationary and mobile phases of gel filtration chromatography. (05 marks) **[February 2022]**
3. Any two applications of gel filtration chromatography. (02 Marks) **[July 2022]**
4. What is the chromatography media used in gel filtration. What are the considerations when choosing a gel filtration chromatography media. (05 marks)**[October 2021]**

Affinity chromatography

1. Explain the principle of affinity chromatography. (02 Marks) **[February 2023]**
2. Explain the principle and applications of affinity chromatography. (05 marks) **[February 2022]**
3. Explain how affinity chromatography helps in quantification and analysis of proteins.(05 marks) **[October 2021]**

INDUSTRIAL PHARMACY

(QP CODE: 722006)



UNIT –I**Pilot Plant Scale-Up Techniques****Essay (10 Marks)**

1. Describe the steps involved in the pilot plant scale up techniques for the development of semisolid dosage forms with relevant documentation. [June 2023]
2. Explain the general consideration of pilot plant scale up techniques for the development of liquid orals forms with relevant documentation. [Feb 2023]
3. Explain general consideration and significance of personnel requirements, space requirement of pilot plant scale up techniques. [July 2022]
4. Explain the general consideration of pilot plant scale up techniques for solid dosage forms.[Feb 2024]

Short Answers (05 Marks)

1. SUPAC guidelines. [June 2023]
2. Describe briefly about platform technology. [Feb 2022]
3. Explain SUPAC guidelines. [Feb 2023]
4. Describe the factors influencing the location of the pharmaceutical industry. [July 2022]
5. Mention some important consideration to platform technology. [July 2022]
6. Explain in detail about SUPAC guidelines. [Feb 2022]
7. Describe briefly about platform technology. [June 2023]
8. Write briefly about platform technology. [Oct 2021]
9. Describe the plant location and layout of Pharma Industry. [June 2023]

Very short Answers (02 Marks):

1. Define Validation. [June 2023]
2. What are the steps involved in scale up process.
3. What are the unit operations involved in pilot plant scale up of solid dosage forms. [Feb 2022]
4. What is critical equipment variable. [Oct 2021]
5. What are the critical manufacturing steps in direct compression of tablet dosage forms. [Oct 2021]
6. What are the objectives of pilot plant scale up techniques. [Oct 2021]
7. Significance of SUPAC guidelines. [July 2022]

UNIT –II**Technology Development and Transfer****Essay (10 Marks)**

1. Discuss the WHO guidelines followed for Technology Transfer in the introduction of drug product for marketing. [June 2023]

2. Explain technology transfer protocol and quality risk management in technology development and also process involved in technology transfer from R and D to production. **[February 2023]**
3. Explain in detail about WHO guidelines for technology transfer. **[July 2022]**
4. Explain technology transfer protocol and quality risk management in technology development and also process involved in technology transfer from R and D to production. **[Feb.2022]**

Short Answers (05 Marks)

1. Quality risk management. **[June 2023]**
2. What are confidentiality agreements and MOUs. **[Feb 2023]**
3. Explain the granularity of TT process involved in technology development and transfer. **[Feb 2023]**
4. Explain approved regulatory bodies and agencies. **[July 2022]**
5. Explain APCTT and BCIL. **[July 2022]**
6. Explain technology development and transfer for granularity of TT Process. **[Feb 2024]**
7. What are the roles of TBSE in Technology Transfer. **[Feb 2022]**
8. Discuss the practical aspects and problems of commercialization. **[Oct 2021]**
9. Responsibilities of TT agencies. **[Oct 2021]**
10. Discuss the WHO guidelines for Technology Transfer (TT). **[Oct 2021]**
11. Granularity of TT Process. **[Feb 2022]**

Very short Answers (02 Marks)

1. TT agencies in India. **[June 2023][Feb 2024]**
2. Confidentiality agreement in technology of transfer. **[June 2023]**
3. Define TIFAC and TBSE. **[Feb 2023]**
4. Define technology transfer protocol. **[Feb 2023]**
5. Write the importance of risk management principles. **[July 2022]**
6. Define transfer of technology. **[July 2022]**
7. Define commercialization. **[July 2022]**
8. Define transfer of Technology. **[Feb 2024]**
9. What are innovation and invention. **[Feb 2022]**
10. Different types of licensing agreement. **[Feb 2022]**
11. Briefly Explain TIFAC. **[Feb 2022]**
12. Steps of drug development process. **[Feb 2022]**
13. Applications of quality risk management. **[Oct 2021]**
14. Define Technology transfer. **[Feb 2022]**

UNIT –III**Regulatory Affairs and Regulatory Requirements for Drug Approval****Essay (10 Marks)**

1. Write a note on the historical overview of regulatory affairs, regulatory authorities and their role & responsibilities in controlling the introduction of newer drug molecules (Feb.2022)

Short Answers (05 Marks):

1. Investigator's Brochure. (June 2023)
2. Explain Data presentation for FDA submissions. [Feb 2023]
3. Discuss the Non-Clinical drug development. [Oct 2021]
4. What are the responsibilities of regulatory affairs personnel. [Oct 2021]
5. Explain the regulatory requirement for non-clinical drug development. [July 2022]
6. Introduction and historical overview of regulatory affairs. [July 2022]

Very short Answers (02 Marks):

1. Different phases of clinical trials. [June 2023] [Oct 2021]
2. Explain INDA. [June 2023]
3. What are the contents of NDA application. [June 2023]
4. Define overages. [June 2023]
5. Importance of Investigator's Brochure (IB) and NDA. [Feb 2023]
6. What are general considerations of Investigational New Drug (IND) application. [Feb 2024]
7. What is NDA. [July 2022]
8. List out the responsibility of regulatory affairs professionals. [July 2022]
9. Different phases of clinical trials. [June 2023]
10. What are bioequivalence experimental study designs. [Oct 2021]
11. Define NDA. [Oct 2021]

UNIT –IV**Indian Regulatory Requirements****Essay (10Marks)**

1. Discuss the role of Central Drug Standard Control Organization in controlling the drug distribution in India and write its organization and responsibilities. [Oct 2021]

Short Answers (05 Marks):

1. Explain organization and responsibilities of CDSCO. [Feb 2023]
2. What are the regulatory requirements and approval procedures for New drugs in India. [Feb 2022][July 2022]
3. Discuss the regulatory requirements for drug approval. [June 2023]
4. Explain detail about Common Technical Document (CTD). [July 2022]

5. Explain COPP. [Feb 2024]
6. What are the responsibilities of CDSCO. [Feb 2022]
7. Explain Certificate of Pharmaceutical Product (COPP). [Feb 2023]

Very short Answers (02 Marks):

1. What is CTD (common technical documents). [June 2023]
2. List out five different modules of CTD. [Feb 2024]
3. What is the structure of CTD. [Feb 2022]
4. Define COPP. [Oct 2021]
5. Briefly explain COPP. [Feb 2022]
6. Format of COPP. [Feb 2023]
7. Structure of CTD. [Oct 2021]
8. Explain CDSCO. [Feb 2024]

UNIT – V

Industrial Safety

Essay (10 Marks)

1. Discuss the plant location and layout and other requirements for starting a Pharma Industry. [Feb 2022]
2. Describe different types of hazards and their prevention in the Pharmaceutical companies (Oct 2021)

Short Answers (05 Marks):

1. Plant location and layout of a pharmaceutical industry. [June 2023]
2. Explain any two hazards and their industrial safety measures. [Feb 2023]
3. Describe the factors influencing the location of the pharmaceutical industry. [July 2022]
4. Discuss the chemical hazards and their prevention.
5. Describe the plant location and layout of Pharma Industry. [Oct 2021]
6. Explain pharmaceutical hazards and their safety. [Feb 2024]

Very short Answers (02 Marks):

1. Types of hazards. [June 2023]
2. List out the major utility and service systems used in pharma industry. [Feb 2023]
3. What are fire hazards and electrical hazards. [July 2022]
4. Differentiate between process layout and product layout. [July 2022]
5. What are accident records. [Oct 2021][July 2022]
6. Define Accident records. [Feb 2023]



PHARMACY PRACTICE

(QP CODE: 723006)

UNIT I**Chapter 1: Hospital and its Organization**

1. Classify the various types of hospitals. (02 marks) [June 2023]
2. Write the key functions of hospitals. (02 marks)[Feb 2023]
3. Write any four functions of a hospital. (02 marks)[July 2022]
4. Draw a typical organizational structure of a hospital. (02 marks) [Oct 2021]

Chapter 2: Hospital Pharmacy and Its Organization

1. Mention the responsibilities of hospital pharmacist. (02 marks) [Feb 2023]
2. Describe location, layout and staff requirement for a Hospital Pharmacy. (10 marks) [July 2022]
3. Explain the functions of a hospital pharmacist. (05 marks) [Feb 2022]
4. What are the responsibilities of a hospital pharmacist. (02 marks) [Oct 2021]

Chapter 3: Drug Distribution System in a Hospital

1. Write about various drug distribution methods in a hospital. (02 marks) [June 2023]
2. Explain the importance of drug distribution techniques and discuss in detail about unit dose drug distribution method in a hospital. (10 marks) [Feb 2023]
3. Explain unit dose drug dispensing system and complete floor stock system for inpatients. (05 marks) [July 2022]
4. Explain the different methods adopted to dispense drugs to inpatient. (10 marks) [Oct 2021]

Chapter 4: Hospital Formulary

1. Addition and deletion of drug from hospital formulary. (02 marks) [Feb 2023]
2. Differentiate between drug list and hospital formulary. (02 marks) [July 2022]
3. Define Hospital Formulary and explain its contents in detail. (10 marks) [Feb 2022]
4. Steps to be followed to add or delete a drug to the Hospital Formulary. (05 marks) [Oct 2021]

UNIT II**Chapter 1: Pharmacy and Therapeutic Committee**

1. Roles and responsibilities of pharmacy and therapeutic committee. (05 marks) [Feb 2023]
2. Functions of pharmacy and therapeutic committee. (05 marks) [July 2022]
3. Procedure adopted by PTC to prepare a list of emergency drugs. (02 marks) [July 2022]
4. Explain the role of P.T.C. in ensuring safe use of drugs in hospital. (05 marks) [Feb 2022]
5. Composition of pharmacy and therapeutic committee. (02 marks) [Oct 2021]

Chapter 2: Clinical Pharmacy

1. Mention types of ward round participation. (02 marks) [June 2023]
2. Steps involved in pharmaceutical care planning. (05 marks) [Feb 2023]
3. Mention different types of ward round participation. (02 marks) [Feb 2023]

4. What is medication chart review. (02 marks) [Feb 2023]
5. Explain the role of pharmacists in ward round participation. (05 marks) [Feb 2022]
6. Scope of clinical Pharmacy. (02 marks) [Oct 2021]
7. Pharmaceutical care. (02 marks) [Oct 2021]

Chapter 3: Patient Medication History Interview

1. Guidelines for patient medication history interview. (05 marks) [June 2023]
2. Draw a medication interview form to collect patient details. (02 marks) [July 2022]
3. Explain the importance of taking medication history from a patient. (02 marks) [Feb 2022]
4. Explain the need for conducting patient medication history interview. (05 marks) [Oct 2021]

Chapter 4: Therapeutic Drug Monitoring

1. Mention the various reasons for ordering for therapeutic drug monitoring. (02 marks) [June 2023]
2. Define therapeutic drug monitoring. (02 marks) [Feb 2023]
3. Define therapeutic drug monitoring and need for therapeutic drug monitoring. (05 marks) [July 2022]
4. Write the different indications of therapeutic drug monitoring. (02 marks) [Feb 2022]
5. Factors to be considered during Therapeutic Drug Monitoring. (05 marks) [Oct 2021]

Chapter 5: Medication Adherence

1. Define medication adherence. Explain the reasons of non-adherence and what are the roles of a pharmacist in monitoring and improving medication adherence. (10 marks) [June 2023]
2. Factors that influence non adherence to medication. (02 marks) [July 2022]
3. Enlist any four causes of patient medication non-adherence. (02 marks) [Oct 2021]

UNIT III

Chapter 1: Adverse Drug Reaction

1. Define adverse drug reaction. Discuss in detail on its management along with its reporting and classification. (10 marks) [Feb 2023]
2. Define and classify adverse drug reactions. Explain the mechanism of Type A reaction with example.(10 marks) [July 2022]
3. Define on adverse drug reaction and describe the various causality assessment scales used to measuring it. (10 marks) [Feb 2022]
4. Define an adverse drug reaction and classify it with suitable examples. (05 marks) [Oct 2021]

Chapter 2: Drug Interactions

1. Write any two pharmacodynamic drug interactions with examples. (02 marks) [Feb 2022]
2. Explain Pharmacokinetic drug interactions with examples. (10 marks) [Oct 2021]

Chapter 3: Drug Information Services

1. Write the examples of primary drug information sources. (02 marks) [June 2023]
2. Requirements for poison information centre. (05 marks) [Feb 2023]
3. Write the various drug information resources. (02 marks) [Feb 2023]
4. Explain the various sources of drug information services. (05 marks) [July 2022]
5. Write the different sources of drug information. (02 marks) [Feb 2022]

Chapter 4: Patient Counselling

1. Define patient counselling. (02 marks) [June 2023]
2. Steps in patient counselling. (02 marks) [Feb 2023]
3. Define patient counselling and explain the various steps involved in patient counselling. (05 marks) [Feb 2022]

Chapter 5: Communication Skill

1. Significance of verbal and nonverbal communication during patient counselling. (05 marks) [June 2023]
2. Write any four communication skills required for a pharmacist. (02 marks) [July 2022]
3. Write the different modes of non-verbal communication. (02 marks) [Feb 2022]

UNIT IV

Chapter 1: Rational Use of Drugs

1. Explain rational use of antibiotics. (05 marks) [Feb 2023]
2. Rational use of over-the-counter drugs. (05 marks) [July 2022]
3. Rational use of Injections. (05 marks) [Feb 2022]
4. Rational use of Antibiotics. (05 marks) [Oct 2021]

CHAPTER 2: PHARMACOTHERAPEUTICS

1. Explain the management of peptic ulcer. (05 marks) [June 2023]
2. Enumerate the classes of drugs used in bronchial asthma. (02 marks) [June 2023]
3. Explain the management of hypertension. (05 marks) [Feb 2023]
4. Management of Myocardial Infarction. (05 marks) [July 2022]
5. Non-pharmacological management of epilepsy. (02 marks) [July 2022]
6. Management of Hypertension. (05 marks) [Feb 2022]
7. Explain the non-pharmacological management of asthma. (02 marks) [Feb 2022]
8. Management of Tuberculosis. (05 marks) [Oct 2021]
9. Role of proton pump inhibitors in the management of peptic ulcer disease. (02 marks) [Oct 2021]

Chapter 3: Interpretation of Clinical Laboratory Tests.

1. Enumerate pulmonary function tests. (02 marks) [June 2023]
2. Liver function tests associated with cholestatic liver disease. (05 marks) [Feb 2023]

3. Explain the various haematological tests used to measure the abnormal constituents of blood. (05 marks) **[July 2022]**
4. What are the different abnormal constituents of urine and explain the various tests used to detect the same. (05 marks) **[Feb 2022]**
5. Explain the tests associated with liver function. (05 marks) **[Oct 2021]**

UNIT V

Chapter 1: Community Pharmacy

1. Discuss the design and legal requirements for community pharmacy management. (10 marks) **[June 2023]**
2. Storage and dispensing of controlled drugs. (05 marks) **[June 2023]**
3. Roles and responsibilities of community pharmacist. (05 marks) **[June 2023]**
4. What are the various registers to be maintained in a community pharmacy. (02 marks) **[June 2023]**
5. Legal requirements to be followed for establishing a drug store. (02 marks) **[July 2022]**
6. What are the different records to be maintained in a community pharmacy. (02 marks) **[Feb 2022]**
7. Draw a typical layout of community pharmacy. (02 marks) **[Oct 2021]**
8. Dispensing of proprietary products in community pharmacy. (02 marks) **[Oct 2021]**
9. Different types of materials to be stocked in a community pharmacy set up. (02 marks) **[Oct 2021]**

Chapter 2: Drug Store Management And Inventory Control

1. Applications of ABC and VED analysis. (05 marks) **[June 2023]**
2. Role of purchasing agent in drug procurement. (05 marks) **[June 2023]**
3. Write the equation for estimating the reorder quantity. (02 marks) **[June 2023]**
4. Different methods of inventory control in pharmacy. (05 marks) **[Feb 2023]**
5. Define the term buffer stock/safety stock. (02 marks) **[Feb 2023]**
6. Mention the common systems for arranging medicines in the shelves. (02 marks) **[Feb 2023]**
7. Advantages and disadvantages of ABC analysis. (02 marks) **[July 2022]**
8. Methods used for analysis of drug expenditure. (02 marks) **[July 2022]**
9. Enlist the different methods of procurement of drugs in a drug store. (02 marks) **[Feb 2022]**
10. Re-order level in inventory control. (02 marks) **[Feb 2022]**



NOVEL DRUG DELIVERY SYSTEM
(QP CODE: 724006)

The logo of Pushpagiri College of Pharmacy is circular with a blue border. Inside the border, the text "PUSHPAGIRI COLLEGE OF PHARMACY" is written in white at the top, and "We care God cures" is written in white at the bottom, separated by two small white stars. The center of the logo features a red cross above a caduceus (a staff with two snakes and wings) set against a yellow background.

UNIT I**CONTROLLED DRUG DELIVERY SYSTEM**

1. Discuss on pharmaceutical applications of polymers. (05 Marks) **(June 2023)**
2. Explain controlled release delivery system based on the principle of diffusion mechanism. (05 Marks) **(June 2023)**
3. Smart polymers with examples. (05 Marks) **(June 2023)**
4. Differentiate biodegradable and non-biodegradable polymers with examples. (02 Marks) **(June 2023)**
5. Enlist biological factors affecting selection of drug candidate. (02 Marks) **(June 2023)**
6. Classify approaches to design controlled release dosage forms. Explain the principle involved in the design of dosage form using ion exchange resins. (10 Marks) **(Feb 2023)**
7. Importance of polymers in formulation development. (05 Marks) **(Feb 2023)**
8. Define repeat action tablets with examples. (02 Marks) **(Feb 2023)**
9. Mention two examples each of hydrophilic and hydrophobic polymers. (02 Marks) **(Feb 2023)**
10. Explain diffusion and dissolution-controlled systems citing suitable examples. (05 Marks) **(July 2022)**
11. List four desirable properties of polymers for pharmaceutical use. (02 Marks) **(July 2022)**
12. Write about ideal drug candidates for controlled drug delivery. (02 Marks) **(July 2022)**
13. List four examples for controlled release polymers. (02 Marks) **(Feb 2022)**
14. Mention disadvantages of controlled release drug delivery systems. (02 Marks) **(Feb 2022)**
15. Define diffusion controlled drug delivery systems. (02 Marks) **(Feb 2022)**
16. Explain the approaches involved in design of controlled release formulations. (10 Marks) **(Oct 2021)**

UNIT II**Microencapsulation/Mucoadhesive & Implantable Drug Delivery System**

1. Merits and demerits of microspheres. (05 Marks) **(June 2023)**
2. Explain the factors affecting drug permeation across mucosal membrane. (05 Marks) **(June 2023)**
3. Write the merits and demerits of buccal drug delivery system. (02 Marks) **(June 2023)**
4. Write the mechanism of osmotic drug delivery system. (02 Marks) **(June 2023)**
5. Discuss the formulation aspects in the development of buccal patches citing suitable examples. (10 Marks) **(Feb 2023)**
6. Explain any three theories of mucoadhesion. (02 Marks) **(Feb 2023)**
7. What are implants. Give example. (02 Marks) **(Feb 2023)**
8. Enlist the applications of microencapsulation. (02 Marks) **(Feb 2023)**
9. Discuss methods of microencapsulation. (10 Marks) **(July 2022)**
10. Describe ideal drug candidates for buccal drug delivery. (05 Marks) **(July 2022)**

11. Explain the concept of osmotic pump. (05 Marks) **(July 2022)**
12. Describe any two theories of mucoadhesion. (05 Marks) **(July 2022)**
13. Discuss microencapsulation by air suspension technique with diagram. (05 Marks) **(Feb 2022)**
14. Outline principle and components of osmotic drug delivery system with suitable diagram. (05 Marks) **(Feb 2022)**
15. List pharmaceutical applications of microencapsulation. (05 Marks) **(Feb 2022)**
16. Outline mechanism of transmucosal permeability. (02 Marks) **(Feb 2022)**
17. Explain microencapsulation by coacervation technique. (05 Marks) **(Oct 2021)**
18. List any four examples for mucoadhesive polymers. (02 Marks) **(Oct 2021)**

UNIT III

Transdermal, Gastroretentive & Nasopulmonary Drug Delivery System

1. Mention the need for gastro retentive drug delivery systems. Explain the methodology of floating drug delivery system with suitable examples. (10 Marks) **(June 2023)**
2. Recall the use of penetrants and crosslinking agent in trans dermal drug delivery system. (02 Marks) **(June 2023)**
3. Mention the applications of dry powder inhalers. (02 Marks) **(June 2023)**
4. Name any two categories of marketed transdermal patches with examples. (02 Marks) **(June 2023)**
5. Explain the basic components of transdermal patches. (05 Marks) **(Feb 2023)**
6. Discuss formulation criteria for pulmonary route of drug administration. (05 Marks) **(Feb 2023)**
7. Write the merits and demerits of transdermal patches. (02 Marks) **(Feb 2023)**
8. Enlist ideal features of permeation enhancers with examples. (02 Marks) **(Feb 2023)**
9. Classify types of nasal formulations. (02 Marks) **(Feb 2023)**
10. Explain the formulation approaches for Transdermal delivery systems. Add a note on the basic components of TDDS. (10 Marks) **(July 2022)**
11. What do you mean by Floating drug delivery systems. (05 Marks) **(July 2022)**
12. Metered dose inhaler. (02 Marks) **(July 2022)**
13. Give any four examples of permeation enhancers used in transdermal drug delivery. (02 Marks) **(July 2022)**
14. Highlight the importance of pulmonary drug delivery. (02 Marks) **(July 2022)**
15. Discuss the basic components of trans dermal drug delivery systems. (10 Marks) **(Feb 2022)**
16. .Explain on nebulizers. (02 Marks) **(Feb 2022)**
17. Discuss the various approaches for Gastroretentive drug delivery. (10 Marks) **(Oct 2021)**
18. List the disadvantages of Implantable systems. (05 Marks) **(Oct 2021)**

UNIT IV**Targeted Drug Delivery System**

1. Monoclonal antibodies. (05 Marks) **(June 2023)**
2. Elaborate the recent developments on the concept of nanotechnology in pharmaceuticals. (05 Marks) **(June 2023)**
3. Mention the applications of nanoparticles. (02 Marks) **(June 2023)**
4. Mention the main components of liposome formulation. (02 Marks) **(June 2023)**
5. Differentiate between liposomes and niosomes. (05 Marks) **(Feb 2023)**
6. Mention the applications of nanoparticles. (02 Marks) **(Feb 2023)**
7. Write the scope of targeted drug delivery. (02 Marks) **(Feb 2023)**
8. Discuss the concept of Monoclonal antibodies. (05 Marks) **(July 2022)**
9. Briefly outline the method of preparation of liposomes. (05 Marks) **(July 2022)**
10. List the approaches for targeted drug delivery . (02 Marks) **(July 2022)**
11. Mention the applications of nanoparticles. (02 Marks) **(July 2022)**
12. What are the major components of niosomes. (02 Marks) **(July 2022)**
13. Discuss the approaches for targeted drug delivery with suitable examples- 10 Marks**(Feb 2022)**
14. Describe ideal drug candidates for liposomal drug delivery. (05 Marks) **(Feb 2022)**
15. Mention the advantages of targeted drug delivery systems. (05 Marks) **(Oct 2021)**
16. Mention the applications of niosomes. (02 Marks) **(Oct 2021)**

UNIT V**Ocular Drug Delivery System**

1. Mention the limitations of conventional ocular preparations. Discuss the importance of ocular inserts- 10 Marks **(June 2023)**
2. Explain in-situ ocular delivery systems. (05 Marks) **(Feb 2023)**
3. Discuss the limitations of conventional ocular delivery systems. (05 Marks) **(Feb 2023)**
4. Explain intra ocular barriers. (02 Marks) **(July 2022)**
5. Classify and outline the salient features of ophthalmic inserts. (05 Marks) **(Feb 2022)**
6. Explain Ocuserts. (05 Marks) **(Oct 2021)**

EIGHTH SEMESTER B.PHARM





**BIostatistics AND RESEARCH
METHODOLOGY**

(QP CODE: 821006)

UNIT-I

1. Define research and explain various types of research. Outline the overall steps in research process. (10 marks) **(July 23)**
2. Discuss the significance of literature review in research. (05 mark) **(Dec 23)**
3. What are the criteria for good research. (05 mark) **(Dec 23)**
4. Format for research protocol. (05 mark) **(july23)**
5. Write the different sources for literature review. (02 mark) **(Dec 23)**
6. List out four unethical practices in research. (02 mark) **(July 23)**
7. What are the difference between research methods and methodology. (05 mark) **(Dec 23)**
8. Significance of research in pharmaceutical sciences. (05 mark) **(Dec 23)**
9. Write an ideal format for research protocol preparation. (05 mark) **(May 22)**
10. Enumerate various types of research. Explain any two. (05 mark) **(Nov 22)**
11. Write difference between research methods and methodology. (02 mark) **(May 22)**
12. Define research gap. (02 mark) **(May 22)**
13. Mention any four unethical practices in research. (02 mark) **(Nov 22)**

UNIT - II

1. List the advantages of representing data in graphical form. Convert the data presented in the following table to graphical form

Patient age	10-20 years	20-30 years	30-40 years	40-50 years	50-60 years	Above 60 years
Percentage	10	10	25	30	15	10

(10 marks) **(Dec 23)**
2. Write the various sources of primary and secondary data. (05 mark) **(July23)**
3. Classify the types of data distribution. (02 mark) **(Dec 23)**
4. Write the meaning of questionnaire. (02 mark) **(July 23)**
5. List out methods of data collection. (02 mark) **(July 23)**
6. Define and detail the primary and secondary data with examples. (05 mark) **(May 22)**
7. Compare graphical representation of data with representation in table form.(05 Marks) **(May 22)**
8. Describe the steps involved in construction of a questionnaire. (05 mark) **(Nov 22)**
9. Give the advantages of observation method of data collection. (02 mark) **(Nov 22)**
10. Explain primary data. Give its limitations. (02 mark) **(Nov 22)**

UNIT - III

1. What are measures of association. (05 mark) **(july23)**
2. Define intervention studies. (02 mark) **(Dec 23)**
3. Odds ratio. (02 mark) **(Dec 23)**

4. Observational study. (02 mark) **(July 23)**
5. Write the advantages and disadvantages of cohort study. (02 mark) **(July 23)**
6. Validity and reliability of instrument. (02 mark) **(July 23)**
7. Explain case-control study. Give an example of case-control study. (02 mark) **(July 23)**
8. Explain various study designs in epidemiology. (05 mark) **(May 22)**
9. Explain the measures of error and bias. (05 mark) **(Nov 22)**
10. Explain case study. Write its importance. (02 mark) **(Nov 22)**
11. Write the measures of disease frequency. (02 mark) **(Nov 22)**
12. Give the advantages of cohort study. (02 mark) **(Nov 22)**
13. Write the types of descriptive studies. (02 mark) **(Nov 22)**

UNIT - IV

1. Explain normal distributions with examples. (05 mark) **(Dec 23)**
2. Explain the probability sampling methods. (05 mark) **(july23)**
3. Enlist screening designs. What is two-level factorial design. What are the advantages of factorial design. (05 mark) **(july23)**
4. Describe two parametric tests used in context of testing hypothesis. (05 mark) **(july23)**
5. Probability sampling. (02 mark) **(Dec 23)**
6. Define mode. (02 mark) **(Dec 23)**
7. Write the relationship between sample size and power of the test. (02 mark) **(July 23)**
8. Non-probability sampling methods. Enlist four methods. (02 mark) **(July 23)**
9. What are measures of central tendency. Explain how it is calculated. (05 mark) **(May 22)**
10. What are measures of central tendency. Explain how it is calculated. (05 mark) **(May 22)**
11. Explain inferential statistics. Write note on different models. (05 mark) **(May 22)**
12. What are the different sampling techniques. Describe any ONE technique. (05 mark) **(Nov 22)**
13. Calculate median for the following data: Class 0-10 11-20 21-30 31-40 41-50 51-60 Frequency 48 62 130 105 58 52 8. With suitable examples, explain various types of variables. (05 mark) **(Nov 22)**
14. Define sample and population. (02 mark) **(May 22)**
15. Define probability. (02 mark) **(May 22)**
16. Define statistics. (02 mark) **(May 22)**
17. Define analysis of variance. (02 mark) **(May 22)**
18. Different types of sampling techniques. (02 mark) **(May 22)**
19. Why sample size is important for the analysis. (02 mark) **(Nov 22)**
20. What are the measures of central tendency. (02 mark) **(Nov 22)**

UNIT - V

1. Explain various types of parametric and non-parametric tests used in hypothesis testing. (10 marks) **(Dec 23)**
2. Describe hypothesis testing in research. Explain how computers and softwares are helpful in statistical analysis. (10 marks) **(July 23)**
3. Components of a thesis. (05 mark) **(july23)**
4. What are basic concepts in writing a research paper. (05 mark) **(Dec 23)**
5. Explain the procedure involved in testing of hypothesis. (05 mark) **(Dec 23)**
6. Define plagiarism. (02 mark) **(Dec 23)**
7. Type II errors in research. (02 mark) **(Dec 23)**
8. Define dropouts. (02 mark) **(Dec 23)**
9. Define bibliography. (02 mark) **(Dec 23)**
10. Define hypothesis. Write their types with suitable examples. (02 mark) **(July 23)**
11. Differentiate between parametric and nonparametric tests. Briefly explain any three parametric and non-parametric tests each used in hypothesis testing. (10 marks) **(May 22)**
12. Describe various components of a thesis. Add a note on publication ethics. (10 marks) **(May 22)**
13. Discuss the significance of literature review. Elaborate the types of literature review. (10 marks) **(Nov 22)**
14. What is hypothesis testing. What are the main points should be considered while formulating the hypothesis. Write the types of statistical hypothesis. Discuss the basic concepts concerning testing of hypothesis. (10 marks) **(Nov 22)**
15. Write the difference between references and bibliography. (05 mark) **(May 22)**
16. Name various softwares used in biostatistics. Explain the features of any one. (05 mark) **(Nov 22)**
17. Characteristics of good hypothesis. (02 mark) **(May 22)**
18. Name some software used in bio statistics. (02 mark) **(May 22)**
19. What is type I and type II errors in research. (02 mark) **(May 22)**
20. Explain Type I error and Type II error. (02 mark) **(Nov 22)**

SOCIAL AND PREVENTIVE PHARMACY

(Q.P. CODE: 822006)



UNIT-I

1. Balanced diet (05 marks) **(July 2023)**.
2. Personal hygiene and healthcare (05 marks) **(July 2023)**.
3. What are the social problems of sick (02 marks) **(July 2023)**.
4. Discuss the concept of prevention and control of diseases with examples (10 marks) **(November 2022)**.
5. Determinants of Health (05 marks) **(November 2022)**.
6. Malnutrition (05 marks) **(November 2022)**.
7. Personal hygiene (05 marks) **(November 2022)**.
8. Vitamin deficiencies (05 marks) **(November 2022)**.
9. Evaluation of public health (05 marks) **(November 2022)**.
10. What are avoidable habits (02 marks) **(November 2022)**.
11. Name the indicators of health (02 marks) **(November 2022)**.
12. Concept of mental health (02 marks) **(November 2022)**.
13. Explain in detail on various vitamin deficiency disorders (10 marks) **(May 2022)**.
14. Write various protein energy malnutrition disorders (05 marks) **(May 2022)**.
15. What are the impacts of urbanization on health (02 marks) **(May 2022)**.
16. Mention avoidable habits (02 marks) **(May 2022)**.
17. Explain health (02 marks) **(May 2022)**.

UNIT-II

1. Explain prevention and control of cholera (05 marks) **(July 2023)**.
2. Explain prevention and control of acute respiratory infections (05 marks) **(July 2023)**.
3. Mention the prevention of lymphatic filariasis (02 marks) **(July 2023)**.
4. Discuss the control of diabetes mellitus (02 marks) **(July 2023)**.
5. What are the principles of influenza control (02 marks) **(July 2023)**.
6. Drug addiction (02 marks) **(July 2023)**.
7. Explain the general principles of prevention and control of SARS (05 marks) **(May 2022)**.
8. Explain the general principles of prevention and control of influenza (05 marks) **(May 2022)**.
9. Explain on drug addiction and drug abuse (05 marks) **(May 2022)**.
10. Discuss the control of hypertension (02 marks) **(May 2022)**.
11. Mention any vector borne diseases with their causative agents (02 marks) **(May 2022)**.
12. Discuss the prevention methods of chikungunya (02 marks) **(May 2022)**.

Unit - III

1. Describe the objectives and functions of National HIV and AIDS control program (10 marks) **(July 2023)**.
2. Explain in detail about National leprosy control program (10 marks) **(July 2023)**.


3. Pulse polio program (05 marks) **(July 2023)**.
4. National TB control program (05 marks) **(July 2023)**.
5. Explain the objectives and functions of the universal immunization program (05 marks) **(July 2023)**.
6. Discuss the functions of National program for control of blindness (02 marks) **(July 2023)**.
7. Explain objectives, functioning and outcome of HIV and AIDS control program (10 marks) **(November 2022)**.
8. National program for prevention and control of deafness (05 marks) **(November 2022)**.
9. Prevention of polio myelitis (02 marks) **(November 2022)**.
10. What is universal immunization program (02 marks) **(November 2022)**.
11. Briefly explain on national mental health program (05 marks) **(May 2022)**.
12. Discuss about national leprosy control program (05 marks) **(May 2022)**.
13. Mention the objectives of pulse polio program (02 marks) **(May 2022)**.
14. National AIDS control program (02 marks) **(May 2022)**.

UNIT – IV

1. National tobacco control program (02 marks) **(July 2023)**.
1. Mention the role of WHO in the Indian national health program (02 marks) **(July 2023)**.
2. Mention the prevention measure for malaria (02 marks) **(July 2023)**.
3. Role of WHO in Indian National Health Program (05 marks) **(November 2022)**.
4. Objectives of national tobacco control program (02 marks) **(November 2022)**.
5. Current issues related to healthcare for the elderly (02 marks) **(November 2022)**.
6. Write the general principles for prevention and control of malaria and cholera (05 marks) **(May 2022)**.
7. National program for the healthcare for elderly (05 marks) **(May 2022)**.
8. Social health program (02 marks) **(May 2022)**.

UNIT - V

1. Discuss various methods for improvement in rural sanitation (02 marks) **(July 2023)**.
2. What are the health promotions in schools (02 marks) **(July 2023)**.
3. Health education in schools (02 marks) **(November 2022)**.
4. Rural sanitation (02 marks) **(November 2022)**.
5. Mention the community services in rural health (02 marks) **(May 2022)**.



PHARMACOVIGILANCE
(QP CODE: 825006)

The logo of Puhpagiri College of Pharmacy is circular with a blue border. Inside the border, the text "PUHPAGIRI COLLEGE OF PHARMACY" is written in white at the top, and "We care God cures" is written in white at the bottom, separated by two small white stars. The center of the logo features a red cross above a caduceus (a staff with two snakes and wings) set against a yellow background.

UNIT I**Introduction to Pharmacovigilance****Introduction to adverse drug reactions****Basic terminologies used in pharmacovigilance**

1. Discuss in detail about Pharmacovigilance Program of India. (10 Marks) **(Dec 2023)**
2. Discuss about importance of safety monitoring of medicines. (05 Marks) **(Dec 2023)**
3. Discuss about the methods used in causality assessment. (05 Marks) **(Dec 2023)**
4. Compare and contrast ADE and ADR. (05 Marks) **(Dec 2023)**
5. Uppsala monitoring centre. (05 Marks) **(Dec 2023)**
6. WHO-Adverse reaction terminologies. (02 Marks) **(Dec 2023)**
7. Drug event monitoring. (02 Marks) **(Dec 2023)**
8. Discuss in detail about WHO International Drug Monitoring Programme. (10 Marks) **(Jul 2023)**
9. Define and classify ADRs. Write in detail about management of ADR. (10 Marks) **(Jul 2023)**
10. Explain about Detection and Reporting of ADR. (05 Marks) **(July 2023)**
11. History and development of Pharmacovigilance. (05 Marks) **(Nov 2022)**
12. Explain PvPI . (02 Marks) **(Nov 2022)**
13. Classify ADR . (02 Marks) **(Nov 2022)**
14. Discuss the roles of Pharmacist in the management and monitoring of ADRs. (10 Marks) **(May 2022)**
15. Describe the genesis and development of Pharmacovigilance in India. (10 Marks) **(May 2022)**
16. Explain the Hartwig's severity assessment of adverse drug reactions. (05 Marks) **(May 2022)**
17. Define ADRs. (02 Marks) **(May 2022)**
18. What is the role of genes in ADRs. (02 Marks) **(May 2022)**

UNIT II**Drug and disease classification****Drug dictionaries and coding in pharmacovigilance****Information resources in pharmacovigilance****Establishing pharmacovigilance programme**

1. Describe about MedDRA and its standardised queries. (05 Marks) **(Dec 2023)**
2. Mention about the drug information resources. (05 Marks) **(Dec 2023)**
3. International non-proprietary names of drugs. (05 Marks) **(Dec 2023)**
4. What are the Lowest level terms in MedDRA Hierarchy. (02 Marks) **(Dec 2023)**
5. What is defined daily doses. (02 Marks) **(Dec 2023), (July 2023)**

6. Name some specialized resources for ADRs. (02 Marks) **(July 2023)**
7. MedDRA. (02 Marks) **(July 2023)**
8. Mention about Eudravigilance Dictionary. (02 Marks) **(July 2023)**
9. Contract research organization in Pharmacovigilance. (02 Marks) **(July 2023)**
10. Explain the establishment of pharmacovigilance program in a hospital. (05 Marks) **(Nov 2022)**
11. What is International classification of diseases. Give one example. (02 Marks) **(Nov 2022)**
12. Explain the functions of Contract Research Organisations in pharmacovigilance. (05 Marks) **(May 2022)**
13. What are the anatomical classification of drugs. (02 Marks) **(May 2022)**

UNIT III

Vaccine safety surveillance

Pharmacovigilance methods

Communication in pharmacovigilance

1. Explain about vaccine safety surveillance. (05 Marks) **(Dec 2023)**
2. Comparative observational study. (05 Marks) **(Dec 2023)**
3. Benefit-Risk analysis. (02 Marks) **(Dec 2023)**
4. Active surveillance. (05 Marks) **(July 2023)**
5. Give the Importance of Vaccine Pharmacovigilance. (02 Marks) **(July 2023)**
6. What are Case-series. (02 Marks) **(July 2023)**
7. Stimulated reporting. (02 Marks) **(July 2023)**
8. Discuss in detail about i) cross sectional study ii) Case control study iii) Cohort Study. (10 Marks) **(Nov 2022)**
9. Passive surveillance. (05 Marks) **(Nov 2022) (May 2022)**
10. Mention about effective communication in Drug safety crisis management. (05 Marks) **(Nov 2022)**
11. What are Sentinel sites. (02 Marks) **(Nov 2022)**
12. Explain communication in drug safety crisis management. (05 Marks) **(May 2022)**
13. Cohort study. (02 Marks) **(May 2022)**
14. What is drug event monitoring in active surveillance. (02 Marks) **(May 2022)**

UNIT IV

Statistical methods for evaluating medication safety data

Safety data generation

ICH Guidelines for Pharmacovigilance

1. What are Periodic Safety Update Reports (PSUR). (02 Marks) **(Dec 2023)**
2. Explain about Good Clinical Practice in Pharmacovigilance. (05 Marks) **(July 2023)**
3. Clinical phase of safety data generation. (05 Marks) **(July 2023)**

4. Pharmacovigilance Planning. (02 Marks) **(July 2023)**
5. Give ICH guidelines about Periodic Safety Update Reports. (02 Marks) **(July 2023)**
6. Explain about ICH guidelines for Pharmacovigilance. (10 Marks) **(Nov 2022)**
7. Explain in brief about Post approval phase of safety data generation. (05 Marks) **(Nov 2022)**
8. Mention the Role of ICH in Pharmacovigilance. (02 Marks) **(Nov 2022)**
9. Pre-clinical phase of safety data generation. (02 Marks) **(Nov 2022)**
10. Name statistical Methods for evaluating Medication safety Data. (02 Marks) **(Nov 2022)**
11. Explain the objectives of ICH and discuss in detail about its organization. (05 Marks) **(May 2022)**
12. Write the ICH standards for individual case safety reports (ICSRs). (05 Marks) **(May 2022)**
13. What is the clinical phase in drug development. (02 Marks) **(May 2022)**

UNIT V

Pharmacogenomics of adverse drug reactions

Drug safety evaluation in special population

CIOMS

CDSCO (India) and Pharmacovigilance

1. Describe in detail about drug safety evaluation in a) Paediatrics b) Geriatrics. (10 Marks) **(Dec 2023)**
2. CIOMS. (02 Marks) **(Dec 2023)**
3. D & C Act. (02 Marks) **(Dec 2023)**
4. CIOMS Form. (05 Marks) **(July 2023)**
5. Describe about the role of D & C Act in pharmacovigilance. (05 Marks) **(July 2023)**
6. Drug safety evaluation in pregnancy and Lactation. (05 Marks) **(July 2023)**
7. Discuss about Differences in Indian and Global Pharmacovigilance requirement. (05 Marks) **(Nov 2022)**
8. Role of CDSCO in Pharmacovigilance. (05 Marks) **(Nov 2022)**
9. What are CIOMS working groups. (02 Marks) **(Nov 2022) (May 2022)**
10. Schedule Y. (02 Marks) **(Nov 2022)**
11. Discuss toxicity studies in schedule Y. (05 Marks) **(May 2022)**
12. What are the CIOMS requirements for ADR reporting. (02 Marks) **(May 2022)**
13. What are the drug safety evaluation in Geriatrics. (02 Marks) **(May 2022)**

PHARMACEUTICAL REGULATORY SCIENCE

(QP CODE: 824006)



UNIT - I
New Drug discovery and Development

1. Discuss the various stages of drug discovery and development process. (10 Marks) **(Dec 2023)**
2. Explain the difference between clinical studies conducted for Generic and Innovator drugs. (10 Marks) **(July 2023)**
3. Write in detail about pre-clinical and clinical studies conducted for Innovator drug registration. (10 Marks) **(May 2022).**
4. Discuss investigational new drug approval process. (05 Marks) **(Dec 2023)**
5. Regulatory requirements of preclinical studies. (05 Marks) **(July 2023)**
6. Explain the clinical stages of generic drug development. (05 Marks) **(July 2023)**
7. Approval process of generic drugs. (05 Marks) **(Nov 2022)**
8. What are the stages of Generic drug product development. (05 Marks) **(May 2022)**
9. Define drug. (02 Marks) **(Dec 2023)**
10. Significance of generic drugs. (02 Marks) **(Dec 2023)**
11. Define new chemical entity. (02 Marks) **(Nov 2022)**
12. Write the importance of pre-clinical studies in drug development. (02 Marks) **(May 2022)**

UNIT – II
Regulatory Approval Process

1. Explain in detail about Investigational New Drug (IND) its Modules and section from I to V in Common Technical Document (CTD). (10 Marks) **(July 2023)**
2. Explain the protocol for submission of Investigational new drug application. (10 Marks) **(Nov 2022)**
3. Write about New drug Application registration in US. Classify its sections. Mention NDA forms. (10 Marks) **(May2022)**
4. Describe the EU pharmaceutical legislation. (05 Marks) **(Dec 2023)**
5. What are the objectives of New drug application. (05 Marks) **(Dec 2023)**
6. Draw a flow chart for ANDA review process. (05 Marks) **(Nov 2022)**
7. Conditions for implementing changes to a new drug application. (05 Marks) **(Nov 2022)**
8. Explain the approval process of investigational new drug (IND). (05 Marks) **(May 2022)**
9. Define NDA and ANDA. (02 Marks) **(Dec 2023)**
10. What are the timelines for Abbreviated New Drug Application (ANDA) approval. (02 Marks) **(July 2023)**
11. Category and types of applications in Australia, Japan and Canada. (02 Marks) **(July 2023)**
12. Mention the timelines involved in filing a new drug application. (02 Marks) **(Nov 2022)**
13. Functions of CDSCO in India. (02 Marks) **(Nov 2022)**
14. Name the regulatory authorities of Canada, Australia, European union and Japan. (02 Marks) **(Nov 2022)**

15. What is abbreviated new drug application. (02 Marks) **(May 2022)**
16. What are the timelines for ANDA from initial filing to final approval. (02 Marks) **(May 2022)**
17. What is the organizational structure of drug regulatory authority of Australia. (02 Marks) **(May 2022)**
18. What are the different categories and types of applications in US and EU. (02 Marks) **(May 2022)**

UNIT – III

Registration of Indian drug product in overseas market

1. Explain the various modules of Common technical document. (10 Marks) **(Nov 2022)**
2. Role of documentation in pharmaceutical regulatory approval process. (05 Marks) **(Dec 2023)**
3. Drug master file. (05 Marks) **(Dec 2023) (July 2023)**
4. Differentiate paper submission, eCTD and non e-CTD electronic submissions (NeeS). (05 Marks) **(July 2023)**
5. ASEAN common Technical Document (ACTD) with country specific guidance on any two Asian countries. (05 Marks) **(July 2023)**
6. Procedure for export of pharmaceutical products. (05 Marks) **(Nov 2022) (May 2022)**
7. Structure of eCTD. (05 Marks) **(May 2022)**
8. e-CTD. (02 Marks) **(Dec 2023)**
9. List of Technical documents required for Export of Pharmaceuticals. (02 Marks) **(July 2023)**
10. Drug master file. (02 Marks) **(Nov 2022)**
11. Write about Drug Master File (DMF) and its type of applications in US and EU. (02 Marks) **(May 2022)**

UNIT – IV

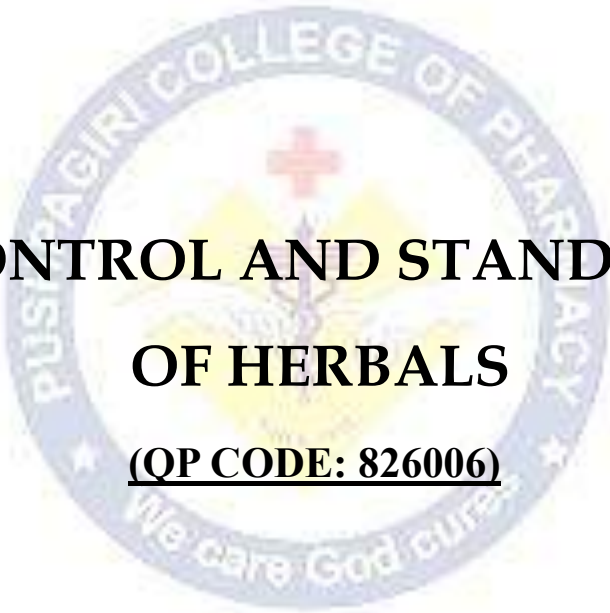
Clinical Trials

1. Explain the principles of Good Clinical Practices. (10 Marks) **(Dec 2023)**
2. Explain the role of pharmacovigilance in marketing of drugs. (05 Marks) **(Dec 2023)**
3. Explain the importance of Pharmacovigilance and its monitoring procedure in post marketing. (05 Marks) **(July 2023)**
4. What are the risks involved in clinical trials. (05 Marks) **(Nov 2022)**
5. Post marketing surveillance. (05 Marks) **(Nov 2022)**
6. Explain the role of placebo in clinical trials. (05 Marks) **(May 2022)**
7. Drug safety monitoring. (05 Marks) **(May 2022)**
8. Institutional review board. (02 Marks) **(Dec 2023)**
9. Which clinical investigations are exempted from IND requirements. (02 Marks) **(Dec 2023)**
10. Responsibilities of ethics committee. (02 Marks) **(Dec 2023)**
11. Write about sponsor. (02 Marks) **(Dec 2023)**
12. General principles applied in clinical research protocol development. (02 Marks) **(July 2023)**
13. Ethics of randomised clinical trials. (02 Marks) **(July 2023)**

14. Reasons and benefits of implementing informed consent in clinical trials. (02 Marks) **(July 2023)**
15. GCP and its importance in clinical trials. (02 Marks) **(July 2023)**
16. What are the obligations from Investigators and monitors while conducting clinical studies. (02 Marks) **(July 2023)**
17. Difference between clinical trial and clinical study. (02 Marks) **(Nov 2022)**
18. Who are subjects and what is their role in a clinical trial. (02 Marks) **(Nov 2022)**
19. Enlist the functions of institutional review board. (02 Marks) **(Nov 2022)**
20. Why clinical research needs to be regulated. (02 Marks) **(Nov 2022)**
21. Write the formation and working procedure of Institutional Review Board (IRB). (02 Marks) **(May 2022)**
22. Write the importance of informed consent form. (02 Marks) **(May 2022)**
23. What are the obligations from sponsors while conducting clinical trials. (02 Marks) **(May 2022)**

UNIT – V (Regulatory Concepts)

1. Orange book. (05 Marks) **(Dec 2023)**
2. Purple book and its uses. (05 Marks) **(July 2023)**
3. What is the need for drug regulations. (05 Marks) **(Nov 2022)**
4. Contents of Orange book and its applications. (05 Marks) **(May 2022)**
5. Role of code of federal regulations. (02 Marks) **(Dec 2023)**
6. Federal register. (02 Marks) **(Dec 2023) (July 2023)**
7. Code of Federal Regulations (CFR) 21CFR. (02 Marks) **(July 2023) (May 2022)**
8. Define law and act. (02 Marks) **(Nov 2022)**



**QUALITY CONTROL AND STANDARDISATION
OF HERBALS**
(QP CODE: 826006)

UNIT I**Basic Tests for Drugs**

1. Describe the various approaches for evaluating the intended utilization of commercial crude drugs. (10 Marks) **[May 2022]**
2. Explain herbal dosage forms using appropriate examples. (05 Marks) **[May 2022]**
3. Ash value and its significance. (05 Marks) **[July 2023]**
4. What is the importance of physical constants in the evaluation of herbal drugs. (05 Marks) **[July 2023]**
5. Describe the procedure to determine the swelling index of herbal drug. (05 Marks) **[July 2023]**
6. Detection of alkaloids in medicinal plants. (05 Marks) **[November 2022]**
7. Write the procedure for determining the total-ash value. (05 Marks) **[November 2022]**
8. Describe the methods for determining the foaming index. (05 Marks) **May 2022]**
3. Test for identification of Tannins and Phenolic compounds. (02 Marks) **[May 2022]**
9. Significance of Ash values. (02 Marks) **[May 2022]**
10. Biological evaluation of crude drugs. (02 Marks) **[May 2022]**
11. Detection of essential oil. (02 Marks) **[May 2022]**
12. Aflatoxins. (02 Marks) **[May 2022]**
13. Detection of pesticidal residues in herbal drugs. (02 Marks) **[May 2022]**
14. Define the term pharmaceutical substances. (02 Marks) **[November 2022]**
15. Qualitative assessment of flavonoids. (02 Marks) **[November 2022]**
16. Significance of extractive values. (02 Marks) **[November 2022]**
17. Chemical evaluation of crude drugs. (02 Marks) **[November 2022]**
18. Define the following terms; “Processed plant material” and “Characterising compound”. (02 Marks) **[May 2022]**
19. Importance of swelling index. (02 Marks) **[November 2022]**
20. What are standardized extracts. (02 Marks) **[July 2023]**
21. Define stomatal number. (02 Marks) **[July 2023]**
22. Chemical tests for alkaloids. (02 Marks) **[July 2023]**
23. Give two examples of saponin drugs. (02 Marks) **[July 2023]**
24. Importance of foaming index. (02 Marks) **[July 2023]**
25. Morphological evaluation of crude drug. (02 Marks) **[July 2023]**

UNIT II**Quality Assurance in Herbal Drug Industry**

1. Explain on WHO's guidelines on GACP for medicinal plants. (10 Marks) [November 2022]
2. Discuss the quality assurance in herbal drug industry of GMP in traditional system of medicine. (10 Marks) [July 2023]
3. GMP in traditional system of medicine. (05 Marks) [May 2022]
4. Write a note on GLP. (05 Marks) [July 2023]
5. Define the term "Medicinal preparation of plant material." Rationalize the objective of herbal medicine safety and efficacy. (05 Marks) [May 2022]
6. Objectives of GAP. (02 Marks) [May 2022]
7. What is the purpose of good manufacturing practices for botanicals. (02 Marks) [November 2022]
8. Define GACP. (02 Marks) [July 2023]

UNIT III**Guidelines For Herbal Drugs**

1. Discuss the EU guidelines for quality control of herbal drugs. (10 Marks) [July 2023]
2. Outline the scope of the ICH guideline on quality of herbal medicine. (05 Marks) [May 2022]
3. Outline the guidelines for assessing the safety and efficacy of herbal medicines. (05 Marks) [November 2022]

UNIT IV**Stability Testing Of Herbal Medicines, Chromatographic Techniques, New Drug Application and Export Registration**

1. Discuss the various chromatographic methods available for standardizing herbal products. (10 Marks) [May 2022]
2. Describe the accepted method for determining herbal medicine stability. (10 Marks) [November 2022]
3. Describe how to prepare a new drug application. (05 Marks) [May 2022]
4. Explain the impact of chromatography techniques on herbal drug quality control. (05 Marks) November 2022]
5. Discuss the applications of chromatography in the standardization of herbal products. (05 Marks) [July 2023]
6. Elaborate stability testing of herbal medicines. (05 Marks) [July 2023]
7. In what ways does gas chromatography contribute to the standardisation of herbal products. (02 Marks) [November 2022]
8. Define stability. (02 Marks) [May 2022]
9. Application of HPTLC in standardization of herbal products. (02 Marks) May 2022]
10. Visualizing agents in chromatography. (02 Marks) [November 2022]
11. Adsorbents in thin-layer chromatography. (02 Marks) [November 2022]

12. What is Rf value. (02 Marks) [July 2023]

13. Name any four adsorbents used in TLC. (02 Marks) [July 2023]

UNIT V

REGULATORY REQUIREMENTS, ROLE OF MARKERS

1. Chemical markers in standardization of herbal products. (05 Marks) [May 2022]

2. Herbal drug regulation in India. (05 Marks) [November 2022]

3. How biological markers can be used to standardize the herbal products. (05 Marks) [November 2022]

4. Explain the role of biological markers in the standardization of herbal drugs. (05 Marks) [July 2023]

5. How does pharmacovigilance work. (02 Marks) [November 2022]

6. List out few significant WHO guidelines for safety monitoring of herbal medicines. (02 Marks) [July 2023]



PHARMACEUTICAL MARKETING I

(QP CODE: 823006)



UNIT I

1. Market segmentation and targeting. (05 marks) **(July 2023)**
2. Enlist the various qualitative aspects of market research - 02 marks **(July 2023)**
3. Analyse the importance of market research in understanding the pharma market - 02 marks **(July 2023)**
4. Write a note on the demographic description of the pharma market- 02 marks **(July 2023)**
5. Motivation and prescribing habits of a physician. (05 marks) **(Nov 2022)**
6. Role of market research in marketing a drug product. (05 marks) **(Nov 2022)**
7. Differentiate selling and marketing. (02 marks) **(Nov 2022)**
8. Highlight effect of patient's choice of physician and retail pharmacist in pharma market. (02 marks) **(Nov 2022)**
9. Explain the importance of market research in pharmaceutical market analysis. (10 marks) **(May 2022)**
10. Differentiate the qualitative and quantitative aspects of market research. (02 marks) **(May 2022)**
11. Define marketing. Highlight the scope of marketing. (02 marks) **(May 2022)**

UNIT II

1. Augmented product concept in Pharma sector. (05 marks) **(July 2023)**
2. Boston matrix in product portfolio analysis. (05 marks) **(July 2023)**
3. Discuss the importance of packing and labeling on the product. (02 marks) **(July 2023)**
4. Explain the importance of portfolio analysis in pharmaceutical industry. (10 marks) **(Nov 2022)**
5. Product life cycle and its significance. (05 marks) **(Nov 2022)**
6. Product management in pharmaceutical industry. (05 marks) **(Nov 2022)**
7. Define product mix and highlight its importance. (02 marks) **(Nov 2022)**
8. Mention the advantages of product branding. (02 marks) **(Nov 2022)**
9. List the factors to be studied for an ideal product positioning. (02 marks) **(Nov 2022)**
10. Define product life cycle and mention its importance. (02 marks) **(May 2022)**
11. Mention the importance of product portfolio analysis. (02 marks) **(May 2022)**
12. Define Brand. Mention the need for product branding. (02 marks) **(May 2022)**

UNIT III

1. Determinants of promotional mix. (05 marks) **(July 2023)**
2. State any two advantages of advertising and personal selling in drug promotion. (02 marks) **(July 2023)**
3. List the various methods for promotion of pharmaceutical products. (02 marks) **(July 2023)**
4. Explain the importance of product promotion as a key strategic variable in pharmaceutical market. (10 marks) **(Nov 2022)**
5. Sales promotion techniques. (05 marks) **(Nov 2022)**
6. Explain the various promotional techniques for over the counter (OTC) products. (10 marks) **(May 2022)**
7. Role of retailers in pharmaceutical marketing. (05 marks) **(May 2022)**

8. Promotional mix. (05 marks) **(May 2022)**

UNIT IV

1. Explain the duties of Professional Sales Representatives (PSR). Add a note on compensation and future prospects of PSR's. (10 marks) **(July 2023)**
2. Criteria for selection of appropriate channels for distribution management. (05 marks) **(July 2023)**
3. Write notes on physical distribution system. (02 marks) **(July 2023)**
4. Role of Professional sales representatives in pharmaceutical marketing. (05 marks) **(Nov 2022)**
5. Mention the importance of designing a proper channel for distribution. (02 marks) **(Nov 2022)**
6. Pharmaceutical distribution channels. (05 marks) **(May 2022)**
7. Selection, training and evaluation of a professional sales representative. (05 marks) **(May 2022)**
8. Future prospects of professional sales representatives. (05 marks) **(May 2022)**

UNIT V

1. Explain the various strategies followed in price management in pharmaceutical Industry. (10 marks) **(July 2023)**
2. Role of consumerism in emerging pharma marketing. (05 marks) **(July 2023)**
3. Horizontal marketing in Pharma sector. (05 marks) **(July 2023)**
4. Mention the process followed for calculation and fixation of prices in Drug Price Control Order. (02 marks) **(July 2023)**
5. Mention the constitution and activities of National Pharmaceutical Pricing Authority. (02 marks) **(July 2023)**
6. Highlight the role played by pharmacist in rural marketing. (02 marks) **(July 2023)**
7. Issues in pricing in pharmaceutical industry. (05 marks) **(Nov 2022)**
8. Define global marketing and mention its importance. (02 marks) **(Nov 2022)**
9. Recall the objectives of Drug Price Control Order (DPCO) and mention the main features of DPCO 2013. (02 marks) **(Nov 2022)**
10. State the main functions of National Pharmaceutical Pricing Authority (NPPA). (02 marks) **(Nov 2022)**
11. Objectives and strategies in drug pricing. (05 marks) **(May 2022)**
12. Importance of vertical and horizontal marketing in Pharma sector. (05 marks) **(May 2022)**
13. Recall the formula for calculating the retail price of the drug as mentioned in Drug-Price Control Order. (02 marks) **(May 2022)**
14. State the importance of global marketing. (02 marks) **(May 2022)**



COSMETIC SCIENCE
(QP CODE: 829006)

UNIT I

1. Define classify and give applications of rheology modifiers. (05 mark) **(July 2023)**
2. Explain in detail about hair growth cycle. (05 mark) **(July 2023)**
3. Write about surfactant. Add a note on its applications. (05 mark) **(July 2023)**
4. Write in short about Cosmetics and Cosmeceuticals. (02 mark) **(July 2023)**
5. Define emollient. (02 mark) **(July 2023)**
6. Structure of skin. (02 mark) **(July 2023)**
7. Describe the structure and functions of the skin with neat labeled diagram. (10 mark) **(November 2022)**
8. What are the common problems associated with teeth and gums. (05 mark) **(November 2022)**
9. Define and classify surfactants. (02 mark) **(November 2022)**
10. Write application of humectants. (02 mark) **mark (November 2022)**
11. Define and classify cosmetics. (02 mark) **(November 2022)**
12. Describe the structure of hair. Add a note on hair growth cycle. (10 mark) **(May 2022)**
13. Classifications and application of cosmetic excipients. (05 mark) **(May 2022)**
14. Functions of skin. (02 mark) **(May 2022)**
15. Define cosmetics. (02 mark) **(May 2022)**

UNIT II

1. What are hair dyes. Classify and explain in detail about its formulation. (10 mark) **(July 2023)**
2. Explain formulation consideration for toothpaste. (05 mark) **(July 2023)**
3. Classify shampoos. Write its applications in hair care. (02 mark) **(July 2023)**
4. Enlist the ingredients used in Mouth wash. (02 mark) **(July 2023)**
5. Discuss various materials used in manufacturing of moisturizing cream. (10 mark) **(November 2022)**
6. Discuss in detail various advantages and disadvantages of cold cream. (05 mark) **(November 2022)**
7. Define antidandruff shampoos. Give one example. (02 mark) **(November 2022)**
8. What are hair conditioners. (02 mark) **(November 2022)**
9. Give examples for teeth whitening products. (02 mark) **(November 2022)**
10. Explain the principles of formulation and building blocks of oral care products. (10 mark) **(May 2022)**
11. Formulation and advantages of vanishing creams in cosmetics. (05 mark) **(May 2022)**
12. Surfactants used in antidandruff shampoo. (02 mark) **(May 2022)**
13. Abrasives and opacifier in toothpaste. (02 mark) **(May 2022)**
14. Hair dyes. (02 mark) **(May 2022)**
15. Teeth whitening . (02 mark) **(May 2022)**

UNIT III

1. Write various benefits of henna and amla in hair care. (10 mark) **(July 2023)**
2. Explain BIS specifications for shampoo. (05 mark) **(July 2023)**
3. Enlist various dental applications of neem. (02 mark) **(July 2023)**
4. Classification of Sunscreens. (02 mark) **(July 2023)**
5. Write analytical methods for skin cream. (05 mark) **(November 2022)**
6. Role of herbs in cosmetics. (05 mark) **(November 2022)**
7. Classify sunscreen preparations. (02 mark) **(November 2022)**
8. What is SPF. Give its significance . (02 mark) **(November 2022)**
9. Sun protection factor. (05 mark) **(May 2022)**
10. Application of aloe vera in skincare. (02 mark) **(May 2022)**
11. Bureau of Indian Standards (BIS) . (02 mark) **(May 2022)**
12. BIS specification for skin cream. (02 mark) **(May 2022)**

UNIT IV

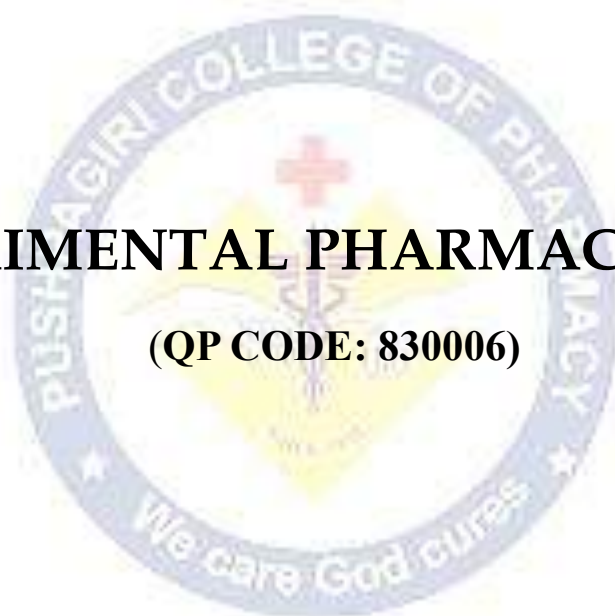
1. Define TEWL. How it is measured . (02 mark) **(July 2023)**
2. Measurement of hair tensile strength. (02 mark) **(July 2023)**
3. With a neat-labeled diagram explain Sebumeter. (05 mark) **(November 2022)**
4. Write the limitations of hair tensile strength measurement. (02 mark) **(November 2022)**
5. Measurement of trans-epidermal water loss in cosmetics. (05 mark) **(May 2022)**

UNIT V

1. Explain in detail about the causes leading to dry skin. (05 mark) **(July 2023)**
2. Explain mechanism of action of antiperspirant and deodorant. (05 mark) **(July 2023)**
3. Millaria. (02 mark) **(July 2023)**
4. What are different types of wrinkles. Give reasons. (05 mark) **(November 2022)**
5. Explain on hair fall. Explain in detail about its prevention. (05 mark) **(November 2022)**
6. Write any one formula for deodorant powder. (02 mark) **(November 2022)**
7. Structure of skin and causes for dry skin. (05 mark) **(May 2022)**
8. Explain body odour. Explain the mechanism of antiperspirants. (05 mark) **(May 2022)**
9. Prickly heat and wrinkles. (05 mark) **(May 2022)**
10. Alopecia. (02 mark) **(May 2022)**

EXPERIMENTAL PHARMACOLOGY

(QP CODE: 830006)



UNIT I**Laboratory Animals**

1. Classify common laboratory animals. Mention the applications of danio rorio in biomedical research. (05 Marks) **[July 2023]**
2. Mus musculus as a common laboratory animal. Mention the bleeding and anesthesia techniques in Rattus norvegicus. (05 Marks) **[July 2023]**
3. Describe the breeding methods in rodents. (05 Marks) **[July 2023]**
4. Explain the CPCSEA guidelines on maintenance of laboratory animals. (05 Marks) **[July 2023]**
5. Differentiate rodents and non-rodents. (02 mark) **[July 2023]**
6. Compare Wistar rats and Sprague-Dawley rats. (02 mark) **[July 2023]**
7. Choice of rabbit in toxicological research. (02 mark) **[July 2023]**
8. Procedure for collection of blood from cardiac puncture in rat. (02 mark) **[July 2023]**
9. Differentiate in-bred and outbred-strains. (02 mark) **[July 2023]**
10. Breeding of animals as per CPCSEA. (05 Marks) **[November 2022]**
11. List two applications each, for hamsters and monkeys in experimental pharmacology. (02 mark) **[November 2022]**
12. Give two examples each for parenteral and inhalational general anaesthetics used in laboratory animals. (02 mark) **[November 2022]**
13. Write the types of bedding materials for rodents. (02 mark) **[November 2022]**
14. What are the applications of transgenic animals. (02 mark) **[November 2022]**
15. List two applications each, for rats and rabbits in experimental pharmacology. (02 mark) **[May 2022]**
16. Write about two CPCSEA approved methods of euthanasia in rodents. (02 mark) **[May 2022]**
17. Write the characteristic feature and application of ob/ob mice. (02 mark) **[May 2022]**
18. Two routes of blood collection from rats. (02 mark) **[May 2022]**

UNIT II**Preclinical Screening Models -Introduction, CNS Activity**

1. Briefly explain:
 - PTZ – induced convulsions model in mice.
 - Techniques of euthanasia in common laboratory animals. (10 Marks) **[July 2023]**
2. Write the difference between in-vitro and in-vivo preclinical studies. (02 mark) **[July 2023]**
3. Concepts of '3Rs' in preclinical studies. (02 mark) **[July 2023]**
4. Principle and procedure for Tail suspension test for antidepressant activity. (05 Marks) **[July 2023]**
5. Explain the in-vivo method of sodium nitrite-induced amnesia test. (05 Marks) **[July 2023]**
6. Enlist four screening methods for CNS stimulants. (02 mark) **[July 2023]**

7. Procedure for inhibition of apomorphine climbing in mice model. (02 mark) **[July 2023]**
8. Explain the principle and procedure of a screening model to evaluate learning and memory, using rodents. (10 Marks) **[November 2022]**
9. Explain a model to test anti-parkinsonism activity of test compounds. (05 Marks) **[November 2022]**
10. What is the importance of sham control. (02 mark) **[May 2022]**
11. Write in detail, the principle and procedure of Eddy's hot plate and writhing tests. (10 Marks) **[May 2022]**
12. A preclinical model to test anti-depressant activity of test compounds. (05 Marks) **[May 2022]**
13. Metabolic cages and its applications in experimental pharmacology. (05 Marks) **[May 2022]**
14. Explain the 3-Rs in research involving animals. List the ways to implement them. (05 Marks) **[May 2022]**
15. Write the difference between in-vitro and in-vivo preclinical studies. (02 mark) **[May 2022]**
16. Write the applications of actophotometer. (02 mark) **[May 2022]**

UNIT III

Preclinical Screening Models for ANS Activity

1. Can you evaluate cycloplegic activity of a test compound using rabbits. (02 mark) **[November 2022]**
2. List two animal models/tissues and their corresponding responses to evaluate adrenergic alpha-blocking activity. (02 mark) **[November 2022]**
3. Name two classes of compounds that can contract tracheal muscles. (02 mark) **[November 2022]**
4. Experimentally, how do you evaluate if a compound can induce mydriasis. (05 Marks) **[November 2022]**
5. One animal model to test the activity of beta receptor blockers. (05 Marks) **[November 2022]**
6. A procedure to test local anaesthetic activity using a rabbit model. (05 Marks) **[May 2022]**
7. Name two classes of compounds that can contract uterine smooth muscles. (02 mark) **[May 2022]**
8. A test drug abolishes light reflex after instilling in the eye. Write inference about the activity of the test drug. (02 mark) **[May 2022]**

UNIT IV

Preclinical Screening Models for CVS Activity, Important Drugs

1. Explain MTT assay. (05 Marks) **[July 2023]**
2. Explain two models to evaluate anti-hypertensive activity of test compounds. (10 Marks) **[November 2022]**
3. A procedure to test anti-coagulant activity of test compounds. (05 Marks) **[November 2022]**
4. Explain two models to evaluate anti-hypertensive activity of test compounds. (10 Marks) **[November 2022]**
5. A procedure to test anti-coagulant activity of test compounds. (05 Marks) **[November 2022]**
6. A method to test cytotoxicity of compounds using cell lines. (05 Marks) **[November 2022]**
7. Explain two methods to screen anti-ulcer activity of test compounds. (10 Marks) **[May 2022]**
8. One rodent model to test anti-dyslipidaemic activity. (05 Marks) **[May 2022]**

9. Explain how sympathomimetics can show either an increase or decrease in dog blood pressure. (05 Marks)[**May 2022**]

UNIT V

Research Methodology and Bio-Statistics

1. What are the objectives of research methodology. Write the steps involved in the process of a systematic literature review. (10 Marks) [**July 2023**]
2. Uses and types of student's t-test. (02 mark) [**July 2023**]
3. Student 't' test to analyze data. (05 Marks) [**November 2022**]
4. When do you use ANOVA to analyze data. (02 Marks) [**November 2022**]
5. What are pie charts. (02 Marks) [**November 2022**]
6. With suitable examples, explain null and alternate hypotheses in research. (05 Marks) [**May 2022**]
7. When do you use paired 't' test to analyze data. (02 Marks) [**May 2022**]



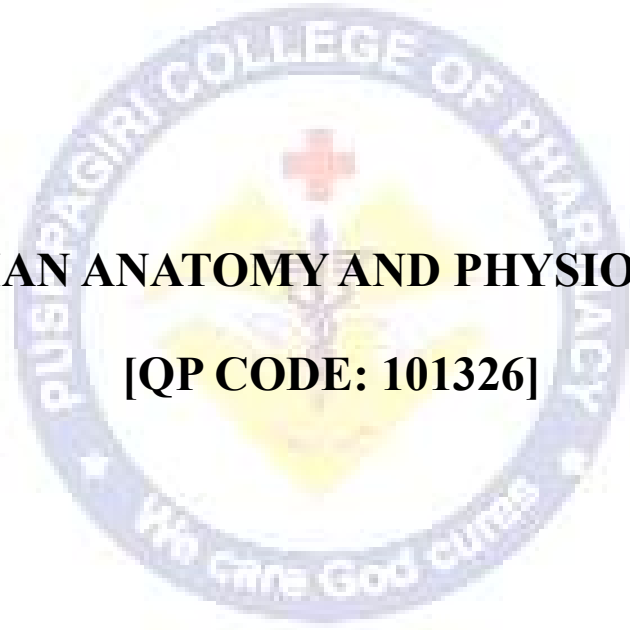
PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



FIRST YEAR PHARM D
QUESTION BANK

HUMAN ANATOMY AND PHYSIOLOGY

[QP CODE: 101326]



CHAPTER-1 INTRODUCTION

- 1.Explain body as a plane. 5 Marks
- 2.Different Levels of structural Organisation. 5 Marks

CHAPTER 2-STRUCTURE OF CELL–ITS COMPONENTS AND THEIR FUNCTION

1. Explain the structure of the cell. Describe the cell components and their functions.10 Marks
[Feb 2021]

CHAPTER - 3 ELEMENTARY TISSUES OF HUMAN BODY

1. Explain the differences among skeletal, smooth and cardiac muscles.5 Marks [Oct 2023]
2. What are tissues. Classify tissues with suitable examples. Explain the functions of epithelial tissues.
10 Marks [Feb 2023]
3. Types and structure of epithelial tissue 5 Marks [Aug 2021]
4. Classify tissues with suitable examples.5 Marks [Aug 2021]
5. Draw the histological structure of squamous epithelium. 5 Marks [Aug 2021]

CHAPTER 4 - OSSEOUS SYSTEM AND JOINTS

1. Write the composition and functions of bone 5 Marks [Oct 2023]
2. Classify joints with suitable examples and write the definitions of joint disorders. 10 Marks [May 2023]
3. Types of movements of joints 5 Marks [June 2022]
4. Synovial joint. 5 Marks [Aug 2021]
5. Types of joints. 5 Marks [Feb 2021]
6. Name the bones of skull. Mention the sutures of skull.5 Marks [July 2019]

CHAPTER 5 - HAEMOPOEITIC SYSTEM

1. Describe the ABO system of Blood Grouping. 5 Marks [Oct 2023, Jan 2019, Dec 2019]
2. Write the composition blood groupings and functions of blood. 10 Marks [Feb 2023]
3. Enumerate the functions of blood 5 Marks [June 2022]
4. Define Platelets and explain the disorders of Coagulation. 5 Marks [Jan 2022]
5. Mention different Clotting factors and their mechanism.5 Marks [Jan 2022]
6. Explain the various types of Clotting factors. 5 Marks [Aug 2021]
7. Explain the life cycle of RBCs. 5 Marks [Aug 2021]
8. Function of RBC and Platelets. 5 Marks [Feb 2021]

CHAPTER 6 - LYMPH

1. Write a note on Lymph and its functions. 5 Marks [Oct 2023]
2. Explain the structure and functions of spleen and mention its disorders.5Marks [Jan 2022]
3. Functions of spleen. 5 Marks [Feb 2021]

CHAPTER 7 - CARDIOVASCULAR SYSTEM

1. What is ECG. How do you obtain it. With a neat diagram explain different waves of ECG. Add a note on electrophysiology of Heart. 10 Marks [**Oct 2023**]
2. With a neat labelled diagram explain the anatomy of heart and explain the functions. 10 Marks [**May 2023**]
3. Describe the anatomy and functions of heart and briefly write about systemic circulation. 10 Marks [**June 2022**]
4. Define blood pressure. Explain its maintenance and regulation 10 Marks [**Jan 2022**]
5. Define the following: 5 Marks [**Jan 2022**]
 - Hypertension Hypoxia Congestive heart failure Asphyxia cardiac output
6. Electrocardiogram. 5 Marks [**Dec 2019**]
7. Explain the various events that take place in cardiac cycle with time sequences 10 Marks [**July 2019**]
8. Discuss the various factors regulating tone of the blood vessels and normal blood pressure. 10 Marks [**Jan 2019**]
9. Various components of ECG. 5 Marks [**Jan 2019**]
10. Heart sounds. 5 Marks [**July 2018**]

CHAPTER 8 – RESPIRATORY SYSTEM

1. Discuss the mechanism of respiration 5 Marks [**Oct 2023**]
2. Mechanism of transport of respiratory gases. 5 Marks [**May 2023**]
3. Transport of respiratory gases. 5 Marks [**Jan 2022**]
4. Describe the anatomy of upper respiratory tract and mechanism of respiration. 10 Marks [**Aug 2021**]
5. Explain the physiology of respiration with a mention of role of diaphragm. 10 Marks [**Dec 2019**]
6. Physiology of respiration 5 Marks [**Jan 2019**]

CHAPTER 9 – DIGESTIVE SYSTEM

1. What are taste buds. Name various taste buds with their location. 5 Marks [**May 2023**]
2. Explain the anatomy of stomach and small intestine. Add a note on digestive enzymes secreted by the organs of GIT. 10 Marks [**May 2023**]
3. With a neat labelled diagram explain the anatomy of stomach and explain the functions of pancreatic secretions. 10 Marks [**Feb 2023**]
4. Explain the secretion and function of accessory gland of GIT. 10 Marks [**June 2022**]
5. Discuss the digestion and absorption of proteins. 5 Marks [**June 2022**]

6. Phases of gastric juice secretion. 5 Marks [Aug 2021]
7. Cellular components and functions of liver. 5 Marks [Jan 2019]
8. Digestion in stomach. 5 Marks [Dec 2019], [Oct 2023]

CHAPTER 10 – NERVOUS SYSTEM

1. Define sympathetic and para sympathetic system and discuss their anatomical and physiological differences. 10 Marks [Oct 2023]
2. Explain the anatomy and physiology of cerebellum. 10 Marks [May 2023]
3. Write the functions of sympathetic nervous system. 5 Marks [May 2023]
4. Write and explain reflex arc. 5 Marks [Feb 2023]
5. Cranial nerves and its functions. 5 Marks [June 2022]
6. Draw a neat labelled diagram of neuron and explain its functions. Add a note on the importance of thalamus. 10 Marks [Feb 2021]
7. Structure of spinal cord. 5 Marks [Feb 2021]
8. Draw a neat diagram of brain and discuss about the functional areas of cerebrum. 10 Marks [Aug 2021]
9. Discuss the anatomical and functional areas of cerebrum 10 Marks [Dec 2019]
10. Functions of cerebrospinal fluid. 5 Marks [July 2019]
11. Explain the functions of parasympathetic nervous system. 5 Marks [July 2019]
12. Explain the functions of hypothalamus. Compare and contrast sympathetic and parasympathetic nervous systems. 10 Marks [Jan 2019]
13. Formation, circulation and functions of cerebrospinal fluid. 5 Marks [Jan 2019]
14. Names and functions of cranial nerves. 5 Marks [Jan 2019]
15. Describe the anatomy, physiology and functional areas of cerebrum. 10 Marks [July 2018]
16. Names and functions of cranial nerves. 5 Marks [July 2018]

CHAPTER 11 – DIGESTIVE SYSTEM

1. With a neat labelled diagram explain the structure of nephron. 5 Marks [May 2023]
2. Explain the process of urine formation 5 Marks [Feb 2023]
3. Draw a neat labelled diagram of nephron and explain its parts. Explain in detail about mechanism of urine formation. 10 Marks [Jan 2022]
4. Clearance tests and micturition. 5 Marks [Jan 2022]
5. Describe the structure and functions of the kidney. Add a note on mechanism of Micturition 10 Marks [July 2019]

CHAPTER 12 – ENDOCRINE SYSTEM

1. Name hormones of adrenal gland and list out [the functions of any one hormone .5 Marks
[Feb 2023]
2. List out the hormones secreted by pituitary glands. Discuss about the functions and abnormalities of growth hormone 10 Marks [June 2022]
3. Functions of adrenal hormones. 5 Marks [Jan 2022]
4. List out the pituitary hormones and explain their functions. 10 Marks [Feb 2021]
5. Structure and functions of pancreas. 5 Marks [Aug 2021]
6. Exocrine secretions of pancreas.5 Marks [Feb 2021]
7. Renin-angiotensin-aldosterone system. 5 Marks [Feb 2021], [Oct 2023]

CHAPTER 13 – REPRODUCTIVE SYSTEM

1. Explain the various processes in spermatogenesis; write short notes on the structure of a mature sperm. 10 Marks [Aug 2021]
2. Oogenesis. 5 Marks [Dec 2019]
3. Explain the genetic basis of sex determinations. 5 Marks [July 2019]
4. Explain Menstrual Cycle. 5 Marks [July 2019]
5. Male reproductive hormones and its functions. 5 Marks [Jan 2019]

CHAPTER 14 – SENSE ORGANS

1. Discuss the gross anatomy of eye and discuss the mechanism of visual sensation.10 Marks[Oct 2023]
2. What is accommodation of eye. Explain. 5 Marks [May 2023]
3. Physiology of vision 5 Marks [June 2022], [Feb 2023]
4. Draw a neat labelled diagram of ear. 5 Marks [Feb 2023]
5. The functional areas of skin. 5 Marks [June 2022]
6. Structure and functions of taste buds. 5 Marks [Feb 2021]
7. Discuss about the physiology of vision. Add note on the importance of rods and cones. 10 Marks
[Dec 2019]
8. Functions of skin. 5 Marks [Jan 2019], [July 2019]
9. Explain the anatomy of eye with a neat labelled diagram. Discuss about image formation. 10
Marks [July 2019]

CHAPTER 15 – SKELETAL MUSCLES

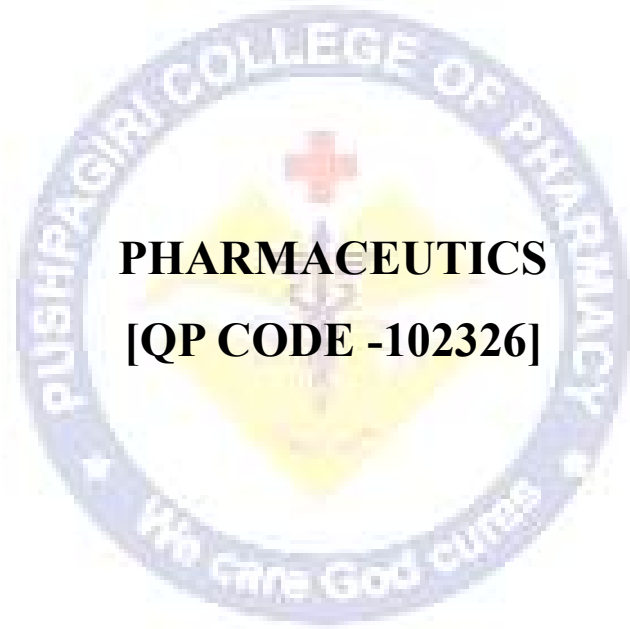
1. Physiology of muscle contraction 5 Marks [July 2018], [May 2023]
2. Discuss any three diseases of muscle disorders. 5 Marks [Feb 2023]
3. Skeletal muscle structure. 5 Marks [Dec 2019]

4. Describe the physiology of contraction and relaxation of skeletal muscle with a neat, labelled diagram. 10 Marks [**Jan 2019**]

CHAPTER 16 – SPORTS PHYSIOLOGY

1. Muscle exercises and athletic training. 5 Marks [**May 2023**]
2. Explain the respiration and CVS in exercises. 5 Marks [**Feb 2023**]
3. Drugs and athletics. 5 Marks [**Jan 2022**]
4. Muscles in exercise. 5 Marks [**Jan 2022**]





PHARMACEUTICS
[QP CODE -102326]

CHAPTER -1 INTRODUCTION TO DOSAGE FORMS, PRESCRIPTION, POSOLOGY

1. What is a prescription? Write and explain the importance of different parts of the prescription. 10 Marks **[Feb 2023]**
2. What is Posology? Explain. List and discuss various factors affecting dose selection. 10 Marks **[May 2023]**
3. Write a typical prescription and show different parts of the prescription. 5 Marks **[May 2023]**
4. Calculate the child's dose based on Clark's formula if the adult dose is 80 mg and 200 mg, and the weight of the child is 14 kg. 5 Marks **[May 2023]**
5. Synergistic and antagonistic effects. 5 Marks **[Jan -2022]**
6. Define prescription. Explain the handling of prescriptions. 5 Marks **[June 2022]**
7. State Young's formula and add a note on surgical dressings. 5 Marks **[June 2022]**
8. Classify dosage forms. 5 Marks **[Feb-2021]**
9. Handling of prescriptions. 5 Marks **[Feb-2021]**
10. Formulas for child dose determination. 5 Marks **[Feb-2021]**
11. What are the components of a typical prescription and explain them. 5 Marks **[Aug-2021]**
12. State Clark's formula. 5 Mark **[Aug-2021]**
13. Define posology. How will you calculate the dose for infants and children based on their physical factors. 10 Marks **[Jan-2019]**
14. Classify the different pharmaceutical dosage forms with examples. 5Marks **[Jan-2019]**
15. Define prescription and explain various parts of prescription. 5 Marks **[Jan-2019]**
16. Define prescription. Explain in detail the various parts of prescription with a model. 10 Marks **[July-2019]**
17. Describe the basic parts of a prescription. 5 Marks **[Dec-2019]**
18. State Dilling's formula. 5Marks **[Dec-2019]**
19. Discuss about various parts of prescription in detail .10 Marks **[July 2018]**

CHAPTER -2 DEVELOPMENT OF PHARMACY PROFESSION AND INDUSTRY

1. Write briefly on the development of Pharma industries in India. 5 Mark **[Feb-2023]**
2. Explain the development of the profession of pharmacy in India related to education. 10 Marks **[Jan-2019]**
3. The development of the pharmaceutical profession. 5 Marks **[July-2019]**

4. Development of pharmacy profession.5 Marks [July 2018]

CHAPTER -3 DEVELOPMENT OF PHARMACOPOEIAS

1. Briefly write on BP. 5 Marks [Feb 2023]
2. Write briefly on the importance of Indian Pharmacopoeia.5 Marks [May -2023]
3. Explain the salient features of Indian Pharmacopoeia.10 Marks [June-2022]
4. Development of Indian pharmacopoeia.5 Marks [Feb-2021]
5. Classify the Pharmacopoeias used in various countries. Explain the vision and the objectives of Indian Pharmacopoeia with its salient features. 10 Marks [Aug-2021]
6. Write a note on the development of Indian pharmacopoeia .5 Marks [Jan-2019]
7. Latest edition of Indian Pharmacopoeia.5 Marks [July 2019]
8. Explain the development of Indian Pharmacopoeia. Discuss the salient features of the latest edition of Indian Pharmacopoeia.10 Marks [Dec-2019]
9. Briefly write about USP and European pharmacopoeias. 5Marks [July -2018]

CHAPTER -4 WEIGHTS AND MEASURES

1. A patient has been prescribed 60 g of 0.2% w/w glyceryl trinitrate ointment for an anal fissure. The strength of glyceryl trinitrate ointments that are available in the shelf are 0.3% w/w and 0.1% w/w. Calculate and report how much of these to be mixed to dispense the prescribed ointment. 5 Marks [May 2023]
2. Define hypotonic solution. How can you convert a Hypotonic solution to Isotonic Discuss 5 Marks [May 2023]
3. When you mix 50 g of 50 %w/w sulphur cream and 25 gm of 2%w/w sulphur cream. What is the concentration of sulphur in the mixed cream? 5Marks [Oct 2023]
4. How hypertonic solution are made isotonic discuss. 5Marks [Oct 2023]
5. An ointment contains 2.5% w/w calamine. How much calamine powder should be added to 200 g of the ointment to produce a 3% w/w calamine ointment.5 Marks [Feb-2023]
6. Isotonic solution. 5 marks [Jan-2022]
7. Explain percentage calculation. How will you prepare 500ml of 40% alcohol from 95% alcohol? 5 Marks [June 2022]
8. Proof spirit.5 marks [Feb-2021]
9. How will you prepare 700ml of 50% alcohol from 90% alcohol.5 marks [Aug-2021]
10. What is allegation method and mention different types & its uses in calculation.5Marks [Jan-2019]
11. How will you prepare 600ml of 60% alcohol from 95% alcohol? 5 Marks [Dec-2019]

CHAPTER -5 POWDERS AND GRANULES

1. List and explain the advantages and disadvantages of Powders as a dosage form. 5 Marks [Feb2023]
2. List and explain the need of ingredients used in a tooth powder.5 Marks [Feb 2023]
3. Dusting powders, Eutectic powder and their uses.5 Marks [Feb-2023]
4. Eutectic and explosive powder with example.5 Marks [June-2022]
5. Explosive powders.5 Marks [Feb-2021]
6. Classify powders. Add a note on effervescent granules.5 Marks [Aug-2021]
7. Explain different methods used for mixing of powders.5Marks [Jan-2019]
8. Explain different methods used for mixing of powders. 5 marks [Jan-2019]
9. Eutectic and explosive powders. 5 Marks [July-2019]
10. Write the advantages and disadvantages of powders. Explain the dusting powder. 5Marks [Dec-2019]
11. Powder and dusting powder.5 Marks [July-2018]

CHAPTER -6 MONOPHASIC DOSAGE FORMS

1. What are Monophasic liquid Dosage forms? Discuss various adjuvants needed to prepare them with suitable examples.10 Marks [May-2023]
2. What is Ear drops and Nasal drops? Write their applications giving suitable examples. 5 Marks [May 2023]
3. Classify monophasic dosage forms with examples. Write the advantages, importance and uses as dosage forms.10 Marks [Oct 2023]
4. Write briefly on liniments and lotions. What are their applications. 5 Marks [Oct-2023]
5. Discuss about the lotions and liniments in detail.10 mark[Jan-2022]
6. Gargles.5 Marks [Jan -2022]
7. Collodions.5 Marks [Jan -2022]
8. Differentiate lotions and liniments. Briefly explain the adjuvants used in formulation of monophasic liquid dosage forms.10 Marks [June-2022]
9. Throat paint.5 mark [Feb 2021]
10. Describe the various excipients used in the formulation of monophasic liquid dosage form with suitable example. 10 mark [Aug-2021]
11. Define liniments. Mention the formula for turpentine liniments and explain the procedure with category.10 Marks [Jan-2019]
12. Classify various adjuvants used for liquid preparation.5 Marks [Jan-2019]
13. Differentiate between lotions and liniments.5Marks [July-2019]

14. Classify monophasic liquid dosage forms with its advantages and disadvantages. Write the formulation, labelling and container used in sodium bicarbonate ear drops. 10 Marks [Dec 2019]
15. Ear drops and nasal drops. 5 Marks [July-2018]
16. Enemas. 5 Marks [July-2018]

CHAPTER -7 BIPHASIC DOSAGE FORMS

1. What are suspensions? What are its advantages? Explain the formulation components of suspensions. 10 Marks [Feb-2023]
2. How to improve stability of emulsion. Explain. 5 Marks [Feb 2023]
3. Write briefly on emulsion stability and its evaluation. 5 Marks [May 2023]
4. With suitable diagrams explain the instability of emulsions. How to improve stability of emulsion. Explain 10Marks [Oct 2023]
5. How physical stability of suspension can be evaluated. Explain. 5 Marks [Oct-2023]
6. Difference between flocculated and de flocculated suspension. 5 Marks [Oct2023]
7. Define suspensions. Discuss about the preparation of suspensions in detail. 10 Marks [Jan 2022]
8. Emulsifying agents. 5 Marks [Jan 2022]
9. Define emulsions. Explain the various methods used for the preparation of emulsions. 5 Marks [June 2022]
10. Explain the advantages and disadvantages of suspension. Add a note on the preparations of suspensions containing diffusible substances. 5 Marks [June 2022]
11. Define emulsions. Discuss about the preparations of emulsions in detail. 10Marks [Feb 2021]
12. Explain the properties of emulsions; explain the tests to identify emulsions. 5 Marks [Jan 2021]
13. Discuss the properties of suspension. Explain flocculated and deflocculated suspensions. 5 Marks [Jan 2021]
14. Differentiate between flocculated and deflocculated suspensions. 5 Marks [July-2019]
15. Classify emulsifying agents and add a note on natural emulsifying agents. 5 Marks [Dec 2019]
16. Define suspension. Discuss the additives used in the formulation of suspension. 5 Marks [Dec 2019]
17. Describe the various stability problems in emulsions. 10 Marks [July 2019]
18. Evaluation of emulsions. 5 Marks [July 2018]

CHAPTER -8 Suppositories and Pessaries

1. What are suppositories and pessaries? What are their applications? How are they prepared? Explain. 10 Marks **[Feb-2023]**
2. What are different ways to identify type of emulsion? Explain. 5 Marks **[Feb-2023]**
3. Discuss on different bases used in the preparation of suppositories. 5 Marks **[Oct-2023]**
4. Give the final composition for 12 suppositories 1g each to contain 50 mg menthol per suppository [Displacement value of menthol =0.7]. 5 Marks **[Oct-2023]**
5. Classify The Types Of Suppository Bases. Add A Note On Glycero Gelatin Bases. 5 Marks **[June 2022]**
6. Types of suppository bases. 5 Marks **[Feb-2021]**
7. Enumerate the ideal qualities of the suppository base with examples. 5 Marks **[Jan-2019]**
8. Evaluation of suppository. 5 Marks **[July 2019]**
9. Explain the properties of ideal suppository bases. Add a note on theobroma oil. 5 Marks **[Jan-2019]**
10. Define the term suppository. Explain the preparation of suppository by fusion method. 5 Marks **[Dec -2019]**
11. Define suppositories. Discuss about the preparation of suppositories in detail. 10 Marks **[Dec-2018]**

CHAPTER -9 Galenicals

1. Define Galenical. Discuss on various types of extraction process involved in preparing the same with suitable examples. 10 marks **[May 2023]**
2. Define Galenicals. Explain importance of size reduction and moistening in extraction process. Briefly describe multiple maceration process. 10 Marks **[Oct 2023]**
3. Infusion and decoction .5 Marks **[Jan -2022]**
4. Describe the technique involved in hot percolation process with suitable example. 5 Marks **[June 2022]**
5. Explain in detail soxhlet extraction. 10 Marks **[July 2019]**
6. Describe the percolation process with suitable example. 5 Marks **[Dec-2019]**
7. Describe the maceration process with suitable example. 5 Marks **[Jan -2021]**
8. Discuss about various maceration processes in detail. 10 Marks **[Dec-2018]**
9. Tinctures. 5 Marks **[Dec-2018]**

CHAPTER -10 Pharmaceutical Calculations

1. Write notes on imperial system in metrology. 5 marks **[Jan-2021]**
2. Write notes on metric system in metrology. 5 Marks **[Dec-2019]**

CHAPTER -11 Surgical Aids

1. Define surgical dressing. Add note on cotton wool. What are their applications.5 Marks
[Oct-2023]
2. Medicated bandage.5 marks. [Jan -2022]
3. Add a note on surgical dressings.5 Marks. [June -2022]
4. Discuss about the various surgical aids in detail.10 mark [Feb-2021]
5. Add a note on surgical cotton.5 marks. [Jan -2021]
6. Define surgical aids. Classify them with examples.5 Marks [July 2019]
7. Add a note on bandages. 5Marks [Dec-2019]

CHAPTER -12 Incompatibilities

1. Classify Incompatibilities. With example, discuss how it can be overcome. 5 Marks [May 2023]
2. Discuss the chemical incompatibility in detail.10 Marks [Jan -2022]
3. Therapeutic incompatibility.5 Marks [Jan- 2022]
4. Define incompatibility. Discuss in brief the various reasons which cause therapeutic incompatibilities.10 Marks [June 2022]
5. Discuss about the physical incompatibility and therapeutic incompatibility in detail.
10 Marks [Feb-2021]
6. Define incompatibility, write the types of incompatibility. Explain the physical incompatibility and the methods of correction with suitable example.10 Marks [Jan-2021]
7. Explain about physical incompatibilities and how to overcome with appropriate examples
5 Marks [Jan -2019]
8. Therapeutic incompatibility.5Marks [July-2019]
9. Write in brief about the types of incompatibilities; discuss the chemical incompatibility which occurs due to alkaloidal salts.10 Marks [Dec-2019]
10. Physical incompatibility. 5 Marks [Dec-2018]

MEDICINAL BIOCHEMISTRY

(Q.P code: 103326)



CHAPTER 1: INTRODUCTION TO BIOCHEMISTRY

1. Explain the various transport process across cell membranes-10 Marks [May 2023]
2. Explain ATP and its biological significance in detail-5 Marks [Feb 2023]
3. Fluid mosaic model of plasma membrane-5 Marks [June 2022]
4. Passive diffusion and facilitated diffusion -5 Marks [Jan 2022]
5. Mitochondria – functions-5 Marks[July 2019]
6. Transport across cell membranes-5 Marks [Jan 2019]

CHAPTER 2: ENZYMES

1. Define enzymes, classify them and describe the factors affecting enzyme activity- 10 Marks [Feb 2023]
2. Isoenzyme and its functions-5 Marks [May 2023, Dec 2019, July 2019]
3. Lock and key model and Koshland model of enzyme action-5 Marks [June 2022]
4. Effects of substrate concentration and temperature on enzyme activity- 5 Marks [Jan 2022]
5. Any two factors affecting enzyme activity-5 Marks [Aug 2021]
6. Coenzymes and diagnostic enzymes-5 Marks [Feb 2021]
7. Coenzymes involved in biological oxidation-5 Marks [Jan 2019]

CHAPTER 3: CARBOHYDRATE METABOLISM

1. Explain in detail Glycolysis-10 Marks [May 2023, Jan 2019]
2. Enlist the phases and explain the reactions of aerobic glycolysis with a note on its energetics- 10 Marks- [June 2022]
3. Explain the reactions of Kreb's cycle. Add a note on its amphibolic nature-10 Marks [Jan 2022]
4. Enlist the salient features of glycolysis and enlist the enzymes involved in this pathway-10 Marks [Aug 2021]
5. Enlist the phases and explain the reactions of hexose monophosphate (HMP) shunt and add a note on the importance of NADPH-10 Marks [Feb 2021, Jan 2019]
6. Explain the citric acid cycle in detail with energetics and significance-10 Marks [Dec 2019]
Explain the oxidation of glucose to pyruvate by glycolysis-10 Marks [July 2019]
7. Diabetes mellitus.-5 Marks[May 2023]
8. Write a note on metabolic disorders of carbohydrate metabolism-5 Marks [Feb 2023]
9. HMP Shunt-5 Marks [Feb 2023]
10. Ornithine cycle- 5 Marks [June 2022]

CHAPTER 4: LIPID METABOLISM

1. Discuss the β – oxidation of saturated fatty acids-10 Marks [**Feb 2023, July 2019,Jan 2019**]
2. Elaborate on the following disorders associated with lipid metabolism Atherosclerosis, Fatty liver- 10 Marks [**June 2023**]
3. Explain in detail the biosynthesis of fatty acids with a suitable example-10 Marks [**Jan 2022**]
4. Explain ketogenesis and ketolysis-10 Marks [**Aug 2021**]
5. Explain in detail the synthesis, utilization and significance of β -hydroxy butyrate-10 Marks [**Feb 2021**]
6. Composition and functions of lipoproteins-5 Marks [**Feb 2023, July 2019**]
7. Effects of good cholesterol and bad cholesterol- 5 Marks [**Jan 2022**]
8. Structure and functions of cholesterol- 5 Marks [**Feb 2021**]
9. Atherosclerosis- 5 Marks [**Dec 2019**]
10. Ketone bodies-5 Marks [**Jan 2019**]
11. HDL - Cholesterol-5 Marks [**Jan 2019**]

CHAPTER 5: BIOLOGICAL OXIDATION

1. Oxidative phosphorylation-5 Marks [**May 2023, Aug 2021,Dec 2019, July 2019**]
2. Mitochondria and components of electron transport chain-5 Marks [**Feb 2021**]

CHAPTER 6: PROTEIN AND AMINO ACID METABOLISM

1. Enlist the stages in protein biosynthesis and explain ‘translation process proper’ 10 Marks [**Jan 2022**]
2. Explain protein synthesis. Write a note on metabolism of purine and pyrimidine nucleotides-10 Marks [**Feb 2021**]
3. Metabolic disorders of amino acids-5 Marks [**May 2023**]
4. Protein biosynthesis - 5 Marks[**Feb 2023**]
5. Urea cycle-5 Marks [**Aug 2021, Dec 2019**]
6. Phenylketonuria and albinism -5 Marks [**Feb 2021**]
7. Jaundice-5 Marks [**Aug 2021**]
8. Porphyria-5 Marks [**Jan 2019**]

CHAPTER 7: NUCLEIC ACID METABOLISM

1. Write about mutation and DNA repair mechanism-10 Marks [**May 2023**]

2. Explain DNA replication with the help of a neat labelled diagram of replication fork process-10 Marks
[June 2022]
3. Explain de novo synthesis of purine nucleotides-10 Marks **[Aug 2021]**
4. Elaborate the semi-conservative replication of DNA. Add a note on genetic code 10 Marks
[Dec 2019]
5. Explain the process of transamination in detail.-5 Marks **[Feb 2023, Jan 2022, July 2019]**
6. Primary gout.-5 Marks **[Aug 2021]**
7. Genetic code- 5 Marks **[July 2019]**

CHAPTER 8: INTRODUCTION TO CLINICAL CHEMISTRY: CELL

1. Clinical chemistry laboratory-5 Marks **[Aug 2018]**

CHAPTER 9: THE KIDNEY FUNCTION TESTS

1. Explain the functions of kidney in the body. Explain any two kidney function tests- 10 Marks
[Dec 2019]
2. Explain urine analysis briefly- 5 Marks **[May 2023]**
3. Kidney Function Tests -5 Marks **[Feb 2023, Jan 2022]**
4. Urea clearance-5 Marks **[Feb 2023]**
5. Clearance tests for assessing kidney function- 5 Marks **[June 2022]**
6. Tests for tubular functions of kidney- 5 Marks **[Feb 2021]**
7. Creatinine clearance test-5 Marks **[July 2019]**
8. Functions of kidney-5 Marks **[July 2019]**
9. Galactose tolerance test- 5Marks **[Jan 2019]**

CHAPTER 10: LIVER FUNCTION TESTS

1. Enumerate the various liver function tests and discuss the tests for serum bilirubin and urine bilirubin.-10 Marks **[Feb 2023]**
2. Define hyperbilirubinemia. Name the tests for bilirubin in urine-5 Marks **[Feb 2023]**
3. Any two liver function tests.-5 Marks **[June 2022, Jan 2022, July 2019]**
4. Test for excretory function of liver.-5Marks **[Aug 2021]**
5. Liver function tests for metabolic functions and detoxification functions of liver-5 Marks **[Feb 2021]**
6. Role of liver in blood coagulation-5 Marks **[Jan 2019]**

CHAPTER 11: LIPID PROFILE TEST

1. How will you determine the HDL cholesterol in serum-5 Marks **[May 2023]**
2. Determination of total cholesterol. -5 Marks **[Aug 2021]**

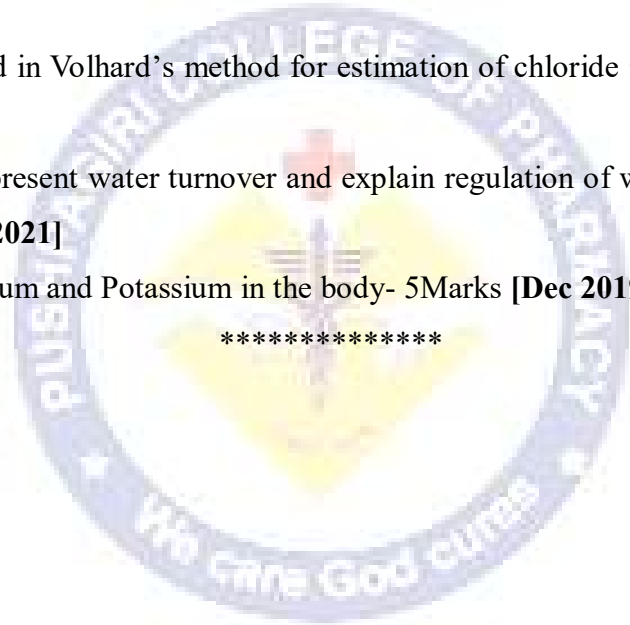
3. Lipid profile tests-5 Marks [Dec 2019]

CHAPTER 12: IMMUNOCHEMICAL TECHNIQUES

1. Elaborate any two immunochemical techniques with their significance-10Marks [Jan 2019]
2. Enzyme Linked Immunosorbent Assay-5 Marks [May 2023, Jan 2022, Aug 2021, July 2019]
3. Principle and procedure of Sandwich ELISA-5 Marks [June 2022]
4. Advantages and disadvantages of Immunochemical techniques-5 Marks [Feb 2021]
5. Radioimmunoassay (RIA) 5 Marks [Dec 2019]

CHAPTER 13: ELECTROLYTES

1. Explain the estimation of sodium and potassium in the body fluids- 5 Marks[Feb 2023, Jan 2022]
2. Principle involved in Volhard's method for estimation of chloride in urine-5 Marks [June 2022]
3. Schematically represent water turnover and explain regulation of water balance in normal adult-5 Marks [Feb 2021]
4. Functions of Sodium and Potassium in the body- 5Marks [Dec 2019]



PHARMACEUTICAL ORGANIC CHEMISTRY
(QP code: 104326)

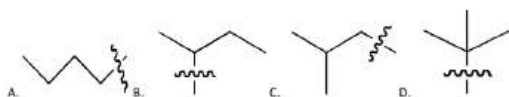


CHAPTER 1- STRUCTURES AND PHYSICAL PROPERTIES

1. Explain the Lowry Bronsted concepts of acid and bases -5 marks [Feb 2023]
2. Add a note on types of solutes and solvents with suitable examples-5 marks [May 2023]
3. Enumerate different intermolecular forces and its role in physical properties-5 Marks[Jan 2022]
4. Compare the following: 1. Protic vs Aprotic solvents 2. Isomerism vs stereoisomerism-5 Marks [Jan 2022]
5. Protic and Aprotic solvent-5 Marks[June2022]
6. Discuss about different types of bonds in organic molecule-5 marks [Feb 2021]
7. Protic and aprotic solvents -5 marks[Feb 2021]
8. Define and classify isomerism. Describe structural isomerism with example-10 marks[Aug 2021]
9. Explain polarity and dipole moment with examples-5 marks[Aug 2021]
10. Explain Lewis theory of acid and base with examples-5 Marks [July 2019]
11. Define and classify isomerism with example-5 Marks[July 2019]
12. Define and give the classification of isomers.-5 Marks[July 2019]
13. Hydrogen bonding-5 Marks[Dec 2019]

CHAPTER 2- NOMENCLATURE OF ORGANIC COMPOUNDS

1. Mention the rules for IUPAC nomenclature and three basic parts in naming the organic compounds with examples. Name the following-5 Marks[May 2023]



2. Explain the IUPAC nomenclature for alkenes-5 Marks[Jan 2022]
3. Explain the IUPAC nomenclature for alcohols-5 Marks[Feb 2021]
4. Explain the nomenclature of alkenes and amines. Discuss the free radical chain reactions of alkanes.-10 Marks[Aug 2021]
5. Mention the structures for the following: i)3-methyl butanal ii) 3-chloro, cyclohexanol iii)1, 3-butadiene iv)Ethyl butanoate v)Resorcinol -5 Marks[Dec 2019]

CHAPTER 3 - FREE RADICALS CHAIN REACTIONS OF ALKANES

1. Explain the mechanism of free radical substitution reaction with suitable example-5 marks [June2022]

2. Explain chlorination of methane with mechanism.-5 marks[**July 2018**]

CHAPTER 4 - ALICYCLIC COMPOUNDS

1. Write the methods of preparation of cyclo alkanes-5 Marks[**Feb 2023**]
2. Explain in detail about Bayer strain theory and its limitations-10 Marks [**May 2023**]
3. Explain the stability of cycloalkanes-5 Marks [**Jan 2022**]
4. Add note on Bayer strain theory-5 Marks [**Feb 2021**]
5. Explain Bayer's theory for stability of cycloalkanes-5 Marks[**Aug 2021**]
6. Write any two method of preparation of cycloalkanes -5 Marks [**July 2019**]

CHAPTER 5 - NUCLOPHILIC ALIPHATIC SUBSTITUTION MECHANISM

1. Describe nucleophilic aliphatic substitution reaction (SN1 and SN2) in detail -10 Marks[**Feb 2023**]
2. Phase transfer catalysis-5 Marks[**Feb 2023**]
3. Rearrangement of carbocation-5 Marks[**May 2023**]
4. Types of carbocations5 Marks[**Jan 2022**]
5. Enumerate the mechanism of SN1 and SN2 reaction with one example-10 Marks[**Jan 2022**]
6. SN1 vs SN2 -5 Marks [**June 2022**]
7. Describe nucleophiles and leaving group-5 Marks[**Aug 2021**]
8. Describe nucleophiles and leaving group. Write the mechanism, kinetics and stereochemistry of SN1 and SN2 reactions-10 Marks[**July 2019**]
9. Explain mechanism and stereochemistry of SN1 reaction-5 Marks[**Jan 2019**]
10. Propose a suitable class of solvents to carry out SN1 and SN2 reactions. Justify your answer -5 Marks [**Dec 2019**]
11. Give the stereochemistry, mechanism and reactivity of SN2 reaction. Add a note on stereochemistry of SN1 reaction.-10 marks[**July 2018**]

CHAPTER 6 - DEHYDRO HALOGENATION OF ALKYL HALIDES

1. Elaborate about the E2 and E1 reactions with mechanism and kinetics.-10 Marks[**May 2023**]
2. Enumerate the types of elimination reactions with one example.-10 Marks[**Feb 2021**]
3. Explain 1, 2 elimination. Write the mechanism, orientation and reactivity of E1 and E2 reaction with appropriate examples-10 marks[**Aug 2021**]
4. Dehydro halogenation of alkyl halides-5 marks[**Aug 2021**]

5. Elimination vs substitution-5 marks[**Aug 2021**]
6. Explain 1, 2 elimination. Write the mechanism, orientation and reactivity of E1 and E2 reaction with appropriate examples.-10 Marks[**July 2019**]
7. Explain the mechanism and evidences for E2 reactions.-10 marks[**Dec 2019**]

CHAPTER 7- ELECTROPHILIC AND FREE RADICALS ADDITION

1. State Markownikoff rule. Explain the mechanism involved in addition of hydrogen halides and peroxide effect-10 Marks[**Feb 2023**]
2. Explain the mechanism of free radical addition reaction with suitable example-5 Marks[**Aug 2021**]
3. What happens when propene is treated with hydrogen bromide? Discuss the mechanism involved and peroxide effect.-10 Marks[**Jan 2019**]
4. Explain Markownikoff and Anti Markownikoff addition with examples-5 Marks[**July 2019**]
5. Explain chlorination of methane with mechanism. -5 marks[**July 2018**]

CHAPTER 8- CARBON-CARBON DOUBLE BOND AS SUBSTITUENTS

1. Explain the reactions involved in the addition of hydrogen bromide to an alkene-5 marks [**Dec 2019**]

CHAPTER 9- THEORY OF RESONANCE

1. Why nucleophilic substitution at vinylic carbon is extremely slow compared to substitution at saturated carbon.-5 Marks[**Feb 2023**]
2. Give the mechanism of 1,2- and 1,4- addition reaction-5 Marks[**July 2019**]
3. Define resonance. Explain in detail the nucleophilic substitution in allylic and vinylic substrates-10 Marks [**Dec 2019**]
4. What are conjugated dienes and add a note on their stability-5 Marks[**July 2018**]

CHAPTER 10- ELECTROPHILIC AROMATIC SUBSTITUTION

1. Describe in detail about electrophilic aromatic substitution reaction in benzene emphasizing general mechanism, theory of reactivity and orientation-10 Marks [**Feb 2023**]
2. Discuss the different examples of electrophilic aromatic substitution and state the concept of resonance stabilization of benzyl radical-10 Marks [**Jan 2022**]

3. Discuss the different examples of electrophilic aromatic substitution and state the concept of resonance stabilization of benzyl radical-10 Marks[**June 2022**]
4. Explain the mechanism of nitration in benzene. Discuss the mechanism involved in peroxide effect-10 Marks[**June 2022**]
5. What is electrophilic aromatic substitution reaction? Explain the effect of substituents with example-10 Marks[**June 2022**]
6. Discuss the general mechanism involved in electrophilic aromatic substitution. Mention the products for bromination of nitrobenzene. Name few activating and deactivating groups- 10 Marks[**Dec 2019**]
7. Explain the theory of orientation with suitable examples in electrophilic aromatic substitution.-10 Marks[**July 2018**]

CHAPTER 11- NUCLEOPHILIC ADDITION REACTION

1. Define acidity constant and effect of substituents on acidity of carboxylic acids-5 Marks[**May 2023**]
2. Compare the acidity of alcohol and phenol-5 Marks[**Jan 2022**]
3. Friedel craft alkylation and acylation-5 Marks[**June 2022**]
4. Friedel craft acylation vs alkylation reaction-5 marks[**Feb 2021**]
5. Give any three reactions of nucleophilic addition. Add a note on reactivity of carbonyl compounds-5 Marks[**Jan 2019**]
6. Explain the reactivity of the alcohols-5 Marks [**Jan 2019**]
7. Discuss the decarboxylation reaction in carboxylic acids. Give a note on stability of carboxylate ion.-5 Marks [**July 2019**]
8. Explain Friedel craft acylation with mechanism-5 Marks[**July 2018**]

CHAPTER 12- MECHANISMS OF NAMED REACTIONS

1. Reformatsky reaction-5 Marks [**Feb 2023**]
2. Discuss about Reimer-Tiemann's reaction-5 Marks [**May 2023**]
3. Explain the mechanism of Hoffman rearrangement, with synthetic applications and peroxide effect-10 Marks[**May 2023**]
4. Discuss the reaction, mechanism and application of the following reactions: i)Reimer Tiemann Reaction ii)Aldol Condensation-10 Marks[**June 2022**]
5. Wittig reaction and Kolbe reaction- 5 Marks[**June 2022**]
6. Explain about any three condensation reaction and its mechanisms-10 Marks[**Feb 2021**]

7. Explain briefly about Cannizzaro reaction and Benzoin condensation with its mechanism-10 Marks[**Jan 2019**]
8. Describe the reaction and mechanism of Cannizzaro's reaction and aldol condensation-10 Marks[**Jan 2019**]
9. Discuss Kolbe-Schmidt reaction and Fries rearrangement-5 Marks[**Jan 2019**]
10. Explain Claisen condensation with its mechanism-5 Marks[**July 2019**]
11. Mention the reaction along with mechanism involved in Michael addition-5 Marks[**Dec 2019**]
12. Discuss the mechanism involved in Cannizzaro's reaction and Benzoin condensation-10 Marks [**July 2018**]

CHAPTER 13- HOFFMAN REARRANGEMENT

1. Explain about the diazotization reaction.-5 Marks[**Feb 2023**]
2. Define basicity constant and compare the basicity between the aliphatic and aromatic amines-5 Marks[**May 2023**]
3. Discuss in general and mechanism of Hoffman rearrangement-5 Mark[**Feb 2021**]
4. Compare the basicity of primary, secondary and tertiary amine-5 Marks[**Feb 2021**]
5. Acidity of phenols -5 Marks[**Aug 2021**]
6. Discuss Kolbe-Schmidt reaction and Fries rearrangement-5 Marks[**Jan 2019**]
7. Acidity of phenols-5 Marks[**July 2019**]
8. Explain Williamson's synthesis and diazotization reaction-5 Marks[**July 2019**]
9. What is Sand Meyer's reaction and mention its importance-5 Marks [**Dec 2019**]
10. Explain Hoffmann's degradation of amides-5 marks[**July 2018**]
11. Explain the basicity of amines-5 marks[**July 2018**]

CHAPTER 14- NUCLEOPHILIC AROMATIC SUBSTITUTION

1. Explain bimolecular displacement mechanism with an example-5 Marks[**Jan 2022**]
2. Explain the nucleophilic aromatic substitution via benzyne mechanism -5 Marks [**Dec 2019**]

CHAPTER 15- OXIDATION REDUCTION REACTION

1. Add a note on oxidation reduction reaction with examples-5 Marks[**Feb 2023**]
2. Discuss oxidation and reduction reaction with examples-5 Marks[**June 2022**]
3. Compare the oxidation reaction vs reductive reaction with an example-5 Marks [**Feb 2021**]

4. Describe stereo specific reduction of alkynes and explain ketoenol tautomerism-5 Marks[**Jan 2019**]

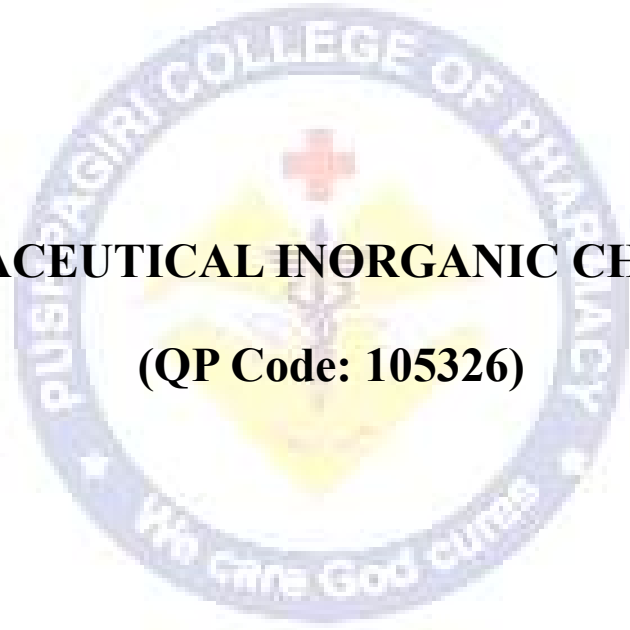
CHAPTER 16- STUDY OF THE FOLLOWING OFFICIAL COMPOUNDS

1. Write the preparation, assay and uses of salicylic acid and ethyl benzoate-5 Marks[**Feb 2023**]
2. Write the preparation, assay and uses of Nitro-glycerin-5 Marks[**May 2023**]
3. Demonstrate the preparation, test for purity and medicinal uses of glyceryl Trinitrate-10 Marks [**Jan 2022**]
4. Write preparation assay, limit test and uses of tartaric acid and glyceryl trinitrate-5 marks [**June 2022**]
5. Explain the structure, assay and uses of vanillin and nitroglycerin-5 Marks [**Aug 2021**]
6. Describe the preparation assay and medicinal uses of dimercaprol, chlorbutol and aspirin-5 Marks [**Jan 2019**]
7. Describe the method of preparation and medicinal uses of benzyl benzoate and mephenesin-5 Marks[**Dec 2019**]



PHARMACEUTICAL INORGANIC CHEMISTRY

(QP Code: 105326)



UNIT I ERRORS

1. Define and classify errors with examples. (05 marks) [May 2023]
2. Explain the types of errors and ways to minimize the errors. (05 marks) [Aug. 2021]
3. Explain the different types of errors (05 marks) [July 2019]

UNIT II VOLUMETRIC ANALYSIS

1. Define and elaborate on the characteristics of primary and secondary standards used in volumetric analysis. List the primary and secondary standards used in the following:
 - Neutralization titration
 - Red-ox titration
 - Complexometric titration
 - Precipitation titration
 - Non-aqueous titration (10 marks) [Aug. 2021]
2. What are the criteria for the selection of indicators and write a note on preparation of standard solutions. (05 marks) [Dec. 2019]
3. What is standard solution, primary standard and secondary standard and explain the requirements for the substances used as primary standard. (05 marks) [July 2019]
4. What are secondary standards. Discuss their characteristics. (05 marks) [Jan. 2019]

UNIT III ACID-BASE TITRATIONS

1. Write the estimation of strong and weak acids with examples. (05 marks) [May 2023]
2. Buffer solution and buffer capacity. (05 marks) [Aug. 2021]
3. Explain the neutralization titration of acid and bases with different titration curves. (10 marks) [Feb. 2021]
4. What are neutralization titration and explain the theories of acid base concept (10 marks) [July 2019]
5. Define the following terms: a.Titrant b.Titrant d.Titration. With the help of titration curve suggest the best indicators for the titration involving strong acid vs strong base. Discuss the preparation and standardization of 0.1 M acetic per chloric acid. (10 marks) [Jan. 2019]

UNIT IV REDOX TITRATION

1. Explain the theory of redox titrations. **(05 marks) [May 2023]**
2. Explain different types of Redox titrations with examples. **(05 marks) [Feb. 2023]**
3. How do you prepare, standardize and store 0.1N potassium permanganate solution. **(05 marks) [Feb. 2023]**
4. Explain standard electrode potential and theory of redox titration. **(05 marks) [June 2022]**
5. Describe the theory of redox titration and explain the preparation and standardization of 0.1M potassium dichromate solution. **(10 marks) [Dec. 2019]**
6. What are red-ox indicators. How will you prepare and standardize 0.1 M potassium permanganate solution. Discuss on the stability of complexes in complexometry titration. **(10 marks) [Jan. 2019]**

UNIT V NON-AQUEOUS TITRATION

1. List the different types of solvents and define them with suitable examples. Elaborate on the types of solvents used in non-aqueous titrations and why they are preferred. **(10 marks) [Aug. 2021]**
2. Explain the types of solvents used in non-aqueous titration. Explain the preparation and standardization of 0.1N perchloric acid. **(10 marks) [Dec. 2019]**

UNIT VI PRECIPITATION TITRATION

1. Explain the principle and procedure involved in the Fajan's method for estimation of halides. **(10 marks) [Feb. 2023]**
2. Describe the principle involved in precipitation titration and explain the argentometric titration with examples. **(10 marks) [Jan 2022]**
3. Explain the different types of precipitation titrations **(10 marks) [July 2019]**

UNIT VII COMPLEXOMETRIC TITRATION

1. Write in detail the principle for Complexometric titrations with suitable example. **(05 marks) [Feb. 2023]**
2. Define complexometric titration. Explain the theory of complexometric titration and give some examples of pM indicators used. **(10 marks) [June 2022]**

3. Explain in detail the complexometric titration and the method of preparation and standardization of M/100 sodium edetate. **(10 marks) [Feb. 2021]**
4. What are masking and demasking agents in complexometric titration and give some examples. **(05 marks) [July 2019]**

UNIT VIII THEORY OF INDICATORS

1. Explain in detail the theory of indicators. **(10 marks) [Jan 2022]**
2. Theories of indicators. **(05 marks) [Feb. 2021]**

UNIT IX GRAVIMETRY

1. Explain in detail the various steps involved in gravimetric analysis and the precautions to be taken in each step. **(10 marks) [May 2023]**
2. Discuss on purity of precipitates in gravimetric analysis. **(05 marks) [Feb. 2021]**
3. Explain with suitable example the co-precipitation and post-precipitation. **(05 marks) [Jan. 2019]**

UNIT X LIMIT TESTS

1. Describe the principle, reactions and procedure involved in the limit test for Iron and Sulphates. **(10 marks) [May 2023]**
2. Explain the principle and procedure with reaction involved in the limit test for Iron and Lead. **(10 marks) [Feb. 2023]**
3. Explain the principle, reaction, apparatus and procedure involved in the limit test of arsenic. **(10 marks) [June 2022]**
4. Explain the principle and procedure involved in the limit test for iron with the neat diagram. **(05 marks) [Jan 2022]**
5. With the neat and labelled diagram and equations explain the limit test for arsenic. **(05 marks) [Feb. 2021]**
6. Describe the principle and procedure involved in the limit test of arsenic with a neat diagram. **(05 marks) [Dec. 2019]**

7. Explain the principle, reaction and procedure involved in the limit test of iron and sulphates. **(10 marks) [July 2019]**
8. Discuss the principle involved in the limit test for sulphate and chloride **(05 marks) [Jan. 2019]**

UNIT XI MEDICINAL GASES

1. Give the medicinal uses and storage conditions of oxygen, carbon dioxide and nitrous oxide. **(05 marks) [Feb. 2023]**
2. Explain the preparation, properties, storage and uses of helium **(05 marks) [Jan 2022]**
3. Explain the assay of oxygen IP with labelled diagram. **(05 marks) [Feb. 2021]**
4. Explain the preparation, properties, storage and uses of nitrous oxide. **(05 marks) [Dec. 2019]**
5. Discuss in detail the test for purity of oxygen IP. **(05 marks) [Jan. 2019]**

UNIT XII ACIDIFIERS

1. What are acidifiers and explain the preparation, assay and uses of ammonium chloride. (05 marks) [Aug. 2021]
2. What are acidifiers. Explain the test for purity, identification test and medicinal uses of sodium phosphate and ammonium chloride (05 marks) [July 2019]

UNIT XIII ANTACIDS

1. Define and classify antacids with examples. Add a note on combination antacid preparations. (05 marks) [Feb. 2023]
2. Explain briefly the identifications test and test for purity and medicinal uses of activated dimethicone. **(05 marks) [June 2022]**
3. Explain the preparation, assay and uses of magnesium trisilicate **(05 marks) [Jan 2022]**
4. How will you prepare the following: magnesium hydroxide gel and aluminium hydroxide gel. **(05 marks) [Feb. 2021]**
5. What are antacids. Classify antacids. Explain the preparation, assay, storage and uses of aluminium hydroxide gel. **(10 marks) [Dec. 2019]**

6. Discuss the ideal properties of Antacids **(05 marks)** [Jan. 2019]

UNIT XIV CATHARTICS

1. Write the preparation, assay and use of magnesium sulphate. **(05 marks)** [May 2023]
2. What are saline cathartics. Explain the mechanism of saline cathartics and give an example of inorganic compound used as saline cathartic and mention its uses. **(05 marks)** [June 2022]
3. Explain the mechanism of action of saline cathartics and give the preparation and uses of magnesium sulphate. **(05 marks)** [Aug. 2021]

UNIT XV ELECTROLYTE REPLENISHERS

1. Explain the composition and use of ORS. **(05 marks)** [May 2023]
2. Discuss briefly about physiological acid base balance. Write the method of preparation and principle involved in the assay of Calcium gluconate. **(10 marks)** [Feb. 2023]
3. Explain briefly the preparation, storage and uses of sodium lactate injection. **(05 marks)** [June 2022]
4. Explain the preparation assay and uses of calcium gluconate. **(05 marks)** [Jan 2022]
5. Explain the preparation, assay and uses of sodium citrate. **(05 marks)** [Aug. 2021]
6. Oral rehydration salts. **(05 marks)** [Aug. 2021]
7. Discuss the test for purity of the following: sodium chloride and ferrous sulphate. **(05 marks)** [Feb. 2021]
8. An abstracted monograph of calcium gluconate IP. **(05 marks)** [Feb. 2021]
9. Official preparations of sodium chloride. **(05 marks)** [Dec. 2019]
10. Explain electrolyte combination therapy (05 marks) [July 2019]

UNIT XVI ESSENTIAL TRACE ELEMENTS

1. Explain the physiological role of Iron and Copper. (05 marks) [Feb. 2023]
2. Explain the physiological role of sulphur and copper. (05 marks) [June 2022]
3. Explain the physiological role of iron and selenium. (05 marks) [Jan 2022]
4. Explain the physiological role of zinc and copper. (05 marks) [Dec. 2019]
5. Explain the physiological role of iron. (05 marks) [July 2019]

UNIT XVII ANTIMICROBIALS

1. Write the principle involved in the preparation and assay of Hydrogen peroxide. (05 marks) [Feb. 2023]
2. Explain briefly the iodine solutions official in IP and mention its medicinal uses. (05 marks) [June 2022]
3. Explain aqueous iodine and strong iodine solution. (05 marks) [Jan 2022]
4. Explain the preparation, assay and uses of chlorinated lime. (05 marks) [Jan 2022]
5. Explain with suitable equations the principle involved in the assay of calcium chloro hypochlorite and copper sulphate. (05 marks) [Feb. 2021]
6. Explain the preparation, assay and uses of boric acid. (05 marks) [Dec. 2019]
7. Explain why boric acid cannot be directly titrated against alkali. Mention the medicinal uses of boric acid. (05 marks) [July 2019]
8. Discuss in detail preparation and assay of iodine tincture. (05 marks) [Jan. 2019]
9. An abstracted monograph on boric acid IP (05 marks) [Jan. 2019]

UNIT XVIII PHARMACEUTICAL AIDS

1. Explain the test for purity and medicinal uses of bentonite. (05 marks) [June 2022]
2. Explain the preparation, assay and uses of bentonite and sodium metabisulphite. (10 marks) [Feb. 2021]

UNIT XIX DENTAL PRODUCTS

1. What are dentifrices. Classify them with examples. Write a note on role of fluoride in the treatment of dental caries. (05 marks) [May 2023]
2. Enumerate the preparation of strontium chloride and dibasic calcium phosphate. (05 marks) [Jan 2022]
3. Discuss the role of fluorides as anticaries agents and give the uses of sodium fluoride. (05 marks) [Dec. 2019]
4. Explain the role of fluorides as anti anticaries agents (05 marks) [July 2019]

UNIT XX MISCELLANEOUS COMPOUNDS

1. Write the principle and procedure for the assay of copper sulphate. (05 marks) **[May 2023]**
2. Write in detail on: a) Antidotes b) G M Counter (05 marks) **[May 2023]**
3. The test for purity and medicinal uses of sodium nitrite and sodium thiosulphate. (05 marks) **[June 2022]** What are expectorants.
4. Write a note on potassium iodide. (05 marks) **[Aug. 2021]**
5. Explain the preparation, assay and uses of ferric ammonium citrate. (05 marks) **[Aug. 2021]**
6. Discuss the medicinal uses of the following: a. Antimony potassium tartrate b. Chlorinated lime c. Copper sulphate d. Bismuth subcarbonate e. Ferric ammonium sulphate (05 marks) **[Jan. 2019]**

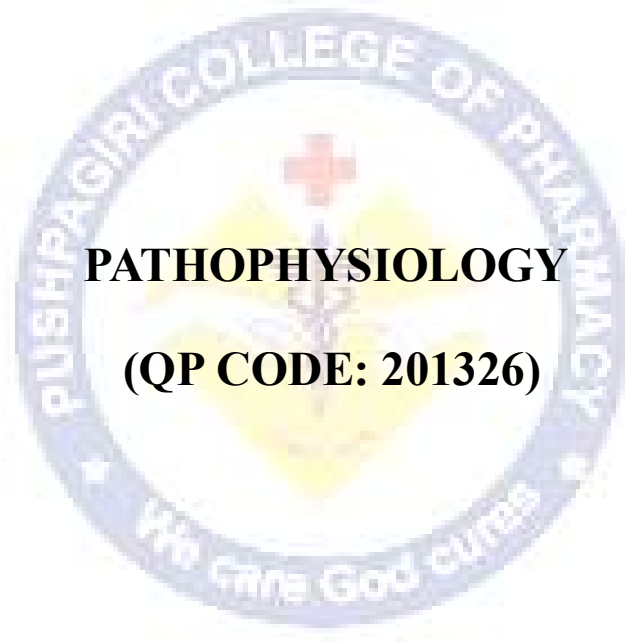
UNIT XXI RADIOPHARMACEUTICALS

1. What is radioactivity. Explain the properties of different types of radiation and their use. Explain the construction and working of any one instrument used in measurement of radiation. (10 marks) **[May 2023]**
2. Write in detail on: a) Antidotes b) G M Counter (05 marks) **[May 2023]**
3. Write the clinical applications of Radiopharmaceuticals. (05 marks) **[Feb. 2023]**
4. Explain Geiger Muller method for detecting and measuring the radioactive radiation and explain the applications of radioactive isotopes in pharmacy. (10 marks) **[June 2022]**
5. Explain the preparation, radiochemical purity, storage and medicinal uses of I 131 solution. (10 marks) **[Jan 2022]**
6. Define the following terms: radioactivity, isotopes and isobars. List the types of radiation and their characteristics. Explain in detail the measurement of radioactivity using GM-counter. (10 marks) **[Aug. 2021]**
7. Explain the radiation hazards and the safety measures to be taken in handling radio pharmaceuticals". (05 marks) **[Dec. 2019]**
1. Differentiate isotopes and isobars. Discuss in detail on radiation hazards and safety measures in handling radioisotopes. Discuss on isotopes of iodine and their applications in medical science. (10 marks) **[Jan. 2019]**

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



SECOND YEAR PHARM D
QUESTION BANK



PATHOPHYSIOLOGY

(QP CODE: 201326)

CHAPTER 1- BASIC PRINCIPLES OF CELL INJURY AND ADAPTATION

1. Write the etiology of cell injury. 5 Marks [**October 2022**]
2. Write about glycogen storage disease. 5 Marks [**May 2022**]
3. Discuss on types of necrosis and apoptosis with suitable example. 10 Marks [**November 2021**]
4. Explain in detail the pathogenesis and morphology of cell injury. 10 Marks [**August 2021**]
5. Describe the pathogenesis and morphology of cell injury. 10 Marks [**January 2021**]
6. Pathogenesis of cell injury. 5 Marks [**December 2019**]
7. Explain the pathogenesis and morphology of cell injury. 10 Marks [**June 2019**]
8. Explain the glycogen storage disease. 5 Marks [**June 2019**]

CHAPTER 2 – INFLAMMATION

1. Cell-derived chemical mediators of inflammation. 5 Marks [**March 2023**]
2. Write the mechanism involved during cell inflammation. 10 Marks [**October 2022**]
3. Wound repair. 5 Marks [**May 2022**]
4. Enumerate the chronic inflammatory process. 5 Marks [**November 2021**]
5. Explain inflammatory mediators. 5 Marks [**August 2021**]
6. Classify the chemical mediators of inflammation. Add a note on the physiological role of histamine. 5 Marks [**January 2021**]
7. The complications of wound healing. 5 Marks [**January 2021**]
8. Explain the types and pathophysiology of inflammation. 10 Marks [**December 2019**]
9. Explain the factors influencing the wound healing process. 5 Marks [**June 2019**]

CHAPTER 3 - DISEASES OF IMMUNITY

1. Explain the pathogenesis of amyloidosis. 10 Marks [**March 2023**]

2. Classify autoimmune diseases. 5 Marks [**March 2023**]
3. Pathogenesis of acquired immunodeficiency syndrome (AIDS). 5 Marks [**March 2023**]
4. Define amyloidosis and explain one localized amyloidosis. 5 Marks [**October 2022**]
5. Write the mechanism involved in autoimmunity, explain one autoimmune disease in detail. 10 Marks [**May 2022**]
6. Classify autoimmune diseases. 5 Marks [**November 2021**]
7. Functions of T and B cells. 5 Marks [**November 2021**]
8. Define autoimmunity and mechanisms of autoimmunity. 5 Marks [**August 2021**]
9. What is hypersensitivity reaction. Explain type I hypersensitivity reaction. 10 Marks [January 2021]
10. What is transplantation reaction and allograft. Describe the mechanism of rejection of allograft. 10 Marks [**January 2021**]
11. Discuss the Pathophysiology of AIDS and its complications. 10 Marks [**December 2019**]
12. Explain the types and mechanisms of autoimmunity. 5 Marks [**December 2019**]
13. Discuss the types of hypersensitivity. 5 Marks [**June 2019**]

CHAPTER 4 – CANCER

1. Write in detailed about the spread of tumour. 10 Marks [**October 2022**]
2. Differentiate benign and malignant tumour. 10 Marks [**May 2022**]
3. Pathogenesis of cancer. 5 Marks [**November 2021**]
4. Five differences between benign and malignant tumor. 5 Marks [**January 2021**]
5. Define and discuss the etiology, pathophysiology and symptoms of cancer. 10 Marks [**June 2019**]

CHAPTER 5 – SHOCK

1. Septic shock. 5 Marks [**October 2022**]
2. Hypovolemic shock and its stages. 10 Marks [**May 2022**]
3. Mechanisms and stages of shock. 5 Marks [**November 2021**]
4. Discuss the types and mechanisms of shock. 5 Marks [**December 2019**]

CHAPTER 6 – BIOLOGICAL EFFECTS OF RADIATION

1. Explain the biological effects of radiation. 5 Marks [**March 2023**]
2. Explain the biological effects of radiation. 5 Marks [**December 2019**]

CHAPTER 7 -ENVIRONMENTAL AND NUTRITIONAL DISEASE

1. Protein calorie malnutrition. 5 Marks [**March 2023**]
2. What is the danger associated with smoking. 5 Marks [**October 2022**]
3. Vitamin deficiency disorder. 10 Marks [**May 2022**]
4. Explain the effects of air pollution. 5 Marks [**November 2021**]
5. Protein calorie malnutrition. 5 Marks [**March 2023**]
6. What is the danger associated with smoking. 5 Marks [**October 2022**]
7. Vitamin deficiency disorder. 10 Marks [**May 2022**]
8. Explain the effects of air pollution. 5 Marks [**November 2021**]
9. Describe about vitamin B6 and B12 deficiency diseases. 10 Marks [**August 2021**]
10. Cigarette smoking and its ill effects. 5 Marks [**December 2019**]
11. Pathogenesis and complications of obesity. 5 Marks [**June 2019**]

CHAPTER 8 - PATHOPHYSIOLOGY OF COMMON DISEASES

1. Explain the etiology and pathogenesis of myocardial infarction. 10 Marks [**March 2023**]
2. Explain the etiology and pathogenesis of congestive heart failure. 10 Marks [**March 2023**]
3. Pathogenesis of ischaemic stroke. 5 Marks [**March 2023**]
4. Symptoms of Schizophrenia. 5 Marks [**March 2023**]
5. Etiology and symptoms of acute kidney failure. 5 Marks [**March 2023**]
6. Explain in detail about diabetes mellitus and its complications. 10 Marks [**October 2022**]
7. Parkinson's disease. 5 Marks [**October 2022**]
8. Explain in detail about ulcerative colitis and its complications. 5 Marks [**October 2022**]
9. Explain in detail the etiopathogenesis of Acute Renal Failure. 10 Marks [**May 2022**]
10. Explain the symptoms and pathophysiology of schizophrenia. 10 Marks [**May 2022**]
11. Explain in detail about Helicobacter pylori induced peptic ulcer disease. 10 Marks [**May 2022**]

12. Explain the etiology and pathophysiology of hypertension. 10 Marks [**November 2021**]
13. Discuss on the stages and pathogenesis of alcoholic liver disease. 5 Marks [**November 2021**]
14. Enumerate pathogenesis of acute renal failure. 5 Marks [**November 2021**]
15. Explain the etiology and pathophysiology of congestive cardiac failure. 10 Marks [**August 2021**]
16. Pathophysiology of schizophrenia. 5 Marks [**August 2021**]
17. Describe the pathophysiology of diabetes mellitus. 5 Marks [**January 2021**]
18. Explain the pathophysiology of congestive heart failure. 5 Marks [**January 2021**]
19. Explain pathogenesis, signs and symptoms of parkinsonism. 5 Marks [**January 2021**]
20. Define and discuss the etiology, pathophysiology and symptoms of CCF. 10 Marks [December 2019]
21. Pathophysiology of diabetes mellitus. 5 Marks [**December 2019**]
22. Discuss the types and pathophysiology of bronchial asthma. 10 Marks [**June 2019**]
23. Pathophysiology of parkinsonism. 5 Marks [**June 2019**]
24. Pathophysiology of chronic renal failure. 5 Marks [**June 2019**]

CHAPTER 9. INFECTIOUS DISEASES

1. Explain the pathophysiology of syphilis along with the stages. 5 Marks [**October 2022**]
2. Bacterial pneumonia. 5 Marks [**October 2022**]
3. Hepatitis and its types. 10 Marks [**May 2022**]
4. Write about the types of leprosy and how it spreads with methods to prevent transmission of leprosy. 10 Marks [**May 2022**]
5. Describe the etiology, pathophysiology and prevention of HIV infection. 10 Marks [November 2021]
6. Enumerate on various stages of urinary tract infections. 5 Marks [**August 2021**]
7. Describe the etiology and pathogenesis of amoebiasis. 5 Marks [**January 2021**]
8. The causative organisms, pathogenesis, signs and symptoms of malaria. 5 Marks [**January 2021**]
9. Discuss the pathogenesis of urinary tract infections. 5 Marks [**December 2019**]
10. Pathophysiology of TB. 5 Marks [**December 2019**]
11. Discuss the pathogenesis of HIV infections. 5 Marks [**June 2019**]
12. Pathophysiology of typhoid. 5 Marks [**June 2019**]

PHARMACEUTICAL MICROBIOLOGY

(QP CODE: 202326)



UNIT I

1. Differentiate between prokaryotes and Eukaryotes.5 marks **(Oct 2022)**
2. Compound microscope with neat diagram.5 marks **(May 2022)**
3. Mention the five-kingdom and three domain system.10marks **(June 2018)**

UNIT II

1. Explain on the cultivation of the virus. 5 marks**(Oct 2022)**
2. Write briefly about the general procedure for Bacterial cell culture. 5 marks **(Oct 2022)**
3. Classification of cultivation techniques and the steps involved in the replication of the virus.
10marks **(May 2022)**
4. Describe the bacterial structure, growth, and metabolism. 10marks **(May 2022)**
5. Describe the ultra-structure of bacteria with a neat labelled diagram. 5 marks **(Nov 2021)**
6. Describe on nutritional requirements for the growth of microorganism. 5 marks **(Aug 2021)**
7. Reproduction of fungi. 5 marks **(Jan 2021)**
8. Define prokaryotes. Draw neat labelled diagram of bacteria and explain various parts of bacteria.
10marks **(Jan 2021)**
9. In detail explain cultivation of anaerobic bacteria. 5marks **(June 2019)**
10. Detail the cultivation of animal viruses. 10marks **(June 2019)**
11. Define steps involved in cultivation of viruses. 5marks **(Jan 2019)**
12. Define bacteria. What are different media required for the growth of aerobic and anaerobic bacteria.10marks **(Jan 2019)**
13. Describe the ultra-structure of bacteria with a neat labelled diagram. 5 marks **(Dec 2018)**
14. Explain the morphology of fungi with a neat diagram. 5 marks **(Jan 2018)**

UNIT III

1. Classify bacterial media with specific example. 10marks **(Mar 2023)**
2. Give a note on aerobic bacterial medium. 10marks **(Mar 2023)**
3. Add a note on continuous cultivation of bacteria. Detail batch culture. 10marks **(Nov 2021)**
4. Classify culture media along with examples for each. 5 marks **(June 2019)**

5. Enriched media and selective media. 5 marks **(Dec 2018) (June 2019) (Nov 2021)**
6. Briefly describe the method of maintenance of organism in lab. 5 marks **(June 2018)**
7. Classify microorganisms based on their physical requirement. 5 marks **(Jan 2018)**
8. What are anaerobes and how they are cultivated. 5 marks **(Jan 2018)**

UNIT IV

1. Explain on the isolation of bacteria. 5 marks **(Mar 2023)**
2. Describe any two methods of viable counting. 5 marks **(Oct 2022)**
3. Differentiate between gram-positive and gram-negative cell walls. Add a note on
4. The principle and Procedure of Gram's staining technique. 10marks **(Oct 2022)**
5. Write about the significance of acid-fast staining. 5 marks **(May 2022)**
6. Differentiate gram-positive and gram-negative cell wall and also mention the role of each chemical used in gram- staining. 5 marks **(Nov 2021)**
7. What is pure culture. Enlist methods for isolation of pure culture. Describe any two industrially important techniques of preserving bacteria. 10marks **(Nov 2021)**
8. Define Staining. Describe various staining techniques for identification of bacteria. 10marks **(Aug 2021)**
9. Differentiate Gram's staining and acid fast staining. 5 marks **(Jan 2021)**
10. Explain biochemical test of bacteria. 5 marks **(Jan 2021)**
11. Classify types of staining and explain in detail gram staining and acid-fast staining. 10marks **(June 2019)**
12. Describe techniques for total and viable count of bacteria. 5 marks **(Jan 2019)**
13. The methods employed in the isolation of bacteria. 5 marks **(Dec 2018)**
14. Define gram staining and importance of negative staining. 5 marks **(Dec 2018)**
15. Explain different methods used in isolation and identification of bacteria. 10marks **(June 2018)**
16. Explain various counting techniques. 5 marks **(June 2018)**

17. Explain gram staining technique. 5 marks **(June 2018)**
18. Procedure and principle involved in MRVP test.5 marks **(Jan 2018)**
19. Describe any two methods of viable count. 5 marks **(Jan 2018)**

UNIT V

1. Describe the counting techniques of bacteria. 5 marks **(Mar 2023)**
2. Brief the construction and working of laminar airflow. 5 marks **(Mar 2023)**
3. Write the merits and demerits of the sterilization technique. 5 marks **(Mar 2023)**
4. Explain principles involved in sterilization by filtration. Add a note on its merits and Demerits 10marks **(Mar 2023)**
5. Explain the principle, procedure, applications, and demerits of sterilization using an autoclave.10marks **(Oct 2022)**
6. Write the scope of Microbiology. Explain the different methods of sterility tests. 10marks **(Oct 2022)**
7. Moist heat sterilization. 5 marks **(May 2022)**
8. Principle involved in the membrane filtration method of sterility test. 5 marks **(May 2022)**
9. Explain on incineration. 5 marks **(May 2022)**
10. Explain functions, merits, and demerits of a hot air oven. 10marks **(May 2022)**
11. Explain the sterilization by autoclaving. 5marks **(Nov 2021)**
12. Write the procedure, merits and demerits of membrane filtration. 5marks **(Nov 2021)**
13. Define the following: Pasteurization • Phagocytosis. • Tyndallisation • Incineration • Antisepsis 5marks **(Nov 2021)**
14. Explain the principle and procedure of physical method of sterilization and also list out its merits and demerits. 10marks **(Aug 2021)**
15. Explain gaseous method of sterilization with examples.5marks **(Jan 2021)**
16. Define sterilization. Explain the sterility testing of pharmaceutical products.5 marks **(Jan 2021)**
17. Explain the principle and procedure of gaseous sterilization and also list out its merits and demerits. 10marks **(June 2019)**
18. Explain sterilization and explain in brief various methods of sterilization. 5 marks **(Jan 2019)**
19. Explain the sterilization by autoclaving. 5 marks **(Dec 2018)**
20. Explain the principle involved, advantages and disadvantages of gaseous sterilization. 10marks **(June 2018)**

21. Dry heat sterilization. 5 marks **(June 2018)**
22. Define sterilization and classify different methods of sterilization. Differentiate between dry heat and moist heat sterilization. 10marks **(Jan 2018)**

UNIT VI

1. Define disinfectants. Write about the factors affecting their activation and mechanism of action. 5 marks **(Aug 2021)**
2. Explain the determination of coefficient through Rideal Walker test. 5 marks **(June 2019)**
3. Classify disinfectants giving examples and name any two compounds used for disinfection of water. 10marks **(June 2019)**
4. How is bactericidal and bacteriostatic activity evaluated. 5 marks**(Jan 2019)**
5. Explain Rideal Walker test. 5 marks**(Jan 2019)**
6. Define and classify disinfectants. Write a detailed note on factors affecting disinfectants' activity and mechanism of action. 10marks **(Jan 2019)**
7. Explain the determination of phenol coefficient through Rideal Walker test. 5 marks **(Dec 2018)**
8. Discuss about the mechanism of action of fungicidal agents. 5 marks **June 2018)**
9. Classify disinfectants and explain the mode of action of each class with example. 10marks **(Jan 2018)**

UNIT VII

1. Classify immunity and give a note on toxoids. 10marks **(Mar 2023)**
2. Write a short note on the general principle of natural immunity. 5 marks**(Oct 2022)**
3. Describe the structure and functions of immunoglobulins. 5 marks**(May 2022)**
4. What is innate immunity, and discuss its mechanism. 5 marks**(May 2022)**
5. Explain any three Ag-Ab reactions. 5 marks**(Nov 2021)**
6. Differentiate active and passive immunity. 5 marks**(Aug 2021)**
7. Define immunity. Write in detail about general principles of natural immunity. 10 marks**(Jan 2021)**
8. Antigen antibody reactions.5 marks**(Aug 2021)**
9. Write the process involved in phagocytosis.10marks**(Aug 2021)**
10. Explain immunization programme and importance of booster dose.5 marks **(Jan 2019)**
11. Explain any three antigen antibody reactions.5 marks **(Dec 2018)**
12. Explain different types of antigen- antibody reactions with examples.10 marks **(Jan 2018)**

UNIT VIII

1. Write the significance of Schick's test. 5 marks **(Mar2023)**
2. Western blot test. 5 marks **(Oct 2022)**
3. Difference between Southern Blot Test and Western Blot Test 5 marks **(Nov 2021)**
4. Write principle, procedure and applications of Western Blotting technique. Explain Schick's Test. 5 marks **(Aug 2021)**
5. Explain PCR. 5 marks **(Jan 2021)**
6. How the vaccines and sera are standardized. Explain. 5 marks (Jan 2021)
7. Differentiate bacterial exotoxins and endotoxins. 5 marks **(Jan 2021)**
8. Write the principle, procedure and application of Mantoux test. 5 marks **(June 2019)**
9. Explain diagnostic tests - Widal and QBC test. 5 marks **(Jan 2019)**
10. Explain in detail about the procedure of ELISA test. 10marks **(Dec 2018)**
11. Differentiate between active and passive immunity. 5 marks **(June 2018)**
12. Explain the structure of immunoglobulin. 5 marks **(June 2018)**
13. ELISA test. 5 marks **(Jan 2018)**
14. Differentiate between endotoxin and exotoxin. 5 marks **(Jan 2018)**

UNIT IX

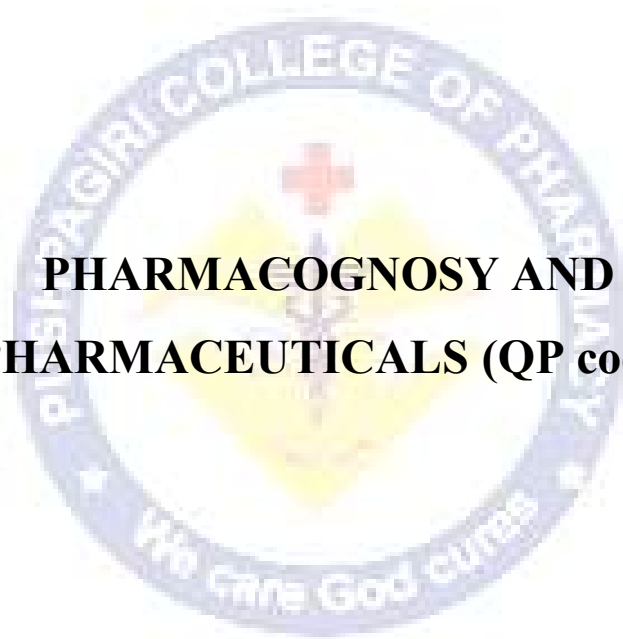
1. Brief about the Microbial assay of Vitamin B12. 5 marks **(Mar 2023)**
2. Describe the counting techniques of bacteria.
3. Explain principles involved in the microbiological assay of streptomycin 5 marks **(Oct 2022)**
4. How the microbiological assay of vitamin B12 works. 5 marks **(Aug 2021)**
5. How the vaccines and sera are standardized. Explain. 5 marks **(Jan 2021)**
6. Describe in detail on principles and methods of different microbiological assays. 10marks **(Jan 2019)**

7. Describe the method of microbiological assay of streptomycin and penicillin. 10marks (**Dec 2018**)
8. Explain the principle and procedure for assay of streptomycin. 5 marks (**Jan 2018**)

UNIT-X

1. Explain the study of malarial parasites. 5 marks(**Mar 2023**)
2. Explain the study of infectious disease tuberculosis. 5 marks(**Mar 2023**)
3. Explain the study of infectious diseases typhoid and malaria. 5 marks (**Oct 2022**)
4. Mention the causative organism, mode of transmission, signs and symptoms, diagnosis and prevention of AIDS. 10marks(**Nov 2021**)
5. Explain the method of treatment of malaria. 5 marks(**Aug 2021**)
6. Explain AIDS. Mention the causative organism, mode of transmission, signs and symptoms, diagnosis and treatment of HIV. 10marks (**Jan 2021**)
7. Mention the causative organism, mode of transmission, signs and symptoms, diagnosis and treatment of tuberculosis. 5 marks(**Aug 2021**)
8. The method of treatment of HIV.5 marks(**June 2019**)
9. Mention the causative organism, mode of transmission, signs and symptoms, diagnosis and treatment of tuberculosis.5 marks(**June 2019**)
10. Write detailed note on Hepatitis. 5 marks(**Jan 2019**)
11. Hepatitis. 5 marks (**June 2018**)
12. Explain the symptoms, causative agent, pathology and treatment of tuberculosis. 10marks (**Dec 2018**)
13. The method of treatment of HIV.5 marks(**Dec 2018**)

**PHARMACOGNOSY AND
PHYTOPHARMACEUTICALS (QP code: 203326)**



CHAPTER 1- INTRODUCTION

1. Define the term pharmacognosy. Explain their impact of naturally derived products in pharmaceutical industries – 10 Marks **[Jan 2023]**

CHAPTER 2-DEFINITION, HISTORY AND SCOPE OF PHARMACOGNOSY

1. What is pharmacognosy. Give the historical features which are important for the development of pharmacognosy. Mention the present status of Pharmacognosy. 10 Marks **[May 2022]**
2. Describe in detail about the history, scope and development of pharmacognosy -10 Marks **[Aug 2021]**
3. Discuss briefly the history of Pharmacognosy. -5Marks **[March 2023]**
4. Define Pharmacognosy. Explain its scope. 5Marks **[Oct 2022, Nov 2021]**

CHAPTER 3-CLASSIFICATION OF CRUDE DRUGS

1. Describe the different methods of crude drug classification with their merits and demerits. – 10 Marks **[Jan 2021]**
2. Mention the different types of classification of crude drugs. Describe in detail about chemical classification with suitable examples. – 10 Marks **[Jun 2019]**
3. Pharmacological classification of crude drugs. – 5 Marks **[Oct 2022]**
4. Explain the Pharmacological classification of Crude drugs with suitable examples– 5 Marks **[May 2022]**
5. Chemical classification of crude drugs– 5 Marks **[Nov 2021]**
6. Explain the pharmacological classification with suitable examples– 5 Marks **[Aug 2021]**
7. Describe the different methods of crude drug classification with their merits and demerits. – 5 Marks **[Jan 2021]**
8. Chemo taxonomical classification of crude drugs. – 5 Marks **[Dec 2019]**

CHAPTER 4-CULTIVATION, COLLECTION, PROCESSING AND STORAGE OF CRUDE DRUGS

1. Give a detailed account of collection and harvesting of crude drugs. Discuss the various

- methods of drying of medicinal plant materials. – 10 Marks [Oct 2022]
2. Explain the various modern cultivation techniques adopted in the cultivation and collection of cardamom– 10 Marks [Aug 2021]
 3. Give the method of cultivation of Cinnamon – 5 Marks [Mar 2023]
 4. Explain about the processing of crude drugs– 5 Marks [May 2022]
 5. Garbling– 5 Marks [Jan 2021]
 6. Storage of crude drugs– 5 Marks [Dec 2019]

CHAPTER 5-DETAILED METHOD OF CULTIVATION OF CRUDE DRUGS

1. Discuss in brief how various extrinsic and intrinsic factors affect the cultivation of medicinal plants. – 10 Marks [Mar 2023]
2. Enumerate the various factors affecting cultivation of medicinal plants. – 10 Marks [May 2022]
3. Explain the diverse factors involved in cultivation of crude drugs with suitable examples. – 10 Marks [Nov 2021]
4. Explain the various methods involved in the cultivation of crude drugs with suitable examples– 10 Marks [Dec 2019]
5. Explain the impact of following factors in cultivation of crude drug; Altitude and Rain fall. – 5 Marks [Aug 2021]
6. Explain in detail about vegetative cultivation– 5 Marks [Jun 2019]

CHAPTER 6- STUDY OF CELL WALL CONSTITUENTS AND CELL INCLUSIONS.

1. Give a detailed account on cell wall constituents and cell inclusions. – 10 Marks [Oct 2022]
2. Enlist the various cell inclusions. Add a note on ergastic cell inclusions. – 5 Marks [May 2022]
3. Write the various cell constituents– 5 Marks [Aug 2021]
4. Explain cell inclusions and their functions– 5 Marks [Dec 2019]

CHAPTER 7- MICROSCOPICAL AND POWDER MICROSCOPICAL STUDY OF CRUDE DRUGS

1. Discuss anatomy of Rauwolfia. – 5 Marks [**Mar 2023**]
 2. Discuss microscopy of Cinchona. – 5 Marks [**Oct 2022**]
 3. Describe the Pharmacognosy of Fennel. – 5 Marks [**Oct 2022**]
 4. Describe the microscopical characters of fennel with a neat labelled diagram. – 5 Marks [**May 2022**]
 5. Morphology of clove buds. – 5 Marks [**Jan 2021**]
 6. Microscopical characters of Fennel – 5 Marks [**Nov 2021**]
 7. Draw a neat labelled macroscopical diagram to explain the macroscopical characters with their sources, chemical constituents and uses of Nux vomica– 5 Marks [**Aug 2021**]
 8. Draw and explain the microscopical characters of Senna. – 5 Marks [**Aug 2021**]
 9. Draw and explain the microscopical characters of Fennel– 5 Marks [**Jun 2019**]
- CHAPTER 8-STUDY OF NATURAL PESTICIDES.**
1. What are natural pesticides. Write a detailed note on Neem. – 10 Marks [**Mar 2023**]
 2. Give an account of natural pesticides. Write a detailed note on Pyrethrum. – 10 Marks [**Nov 2021**]
 3. Define the following terms; Insecticides, Fungicides, Rodenticides, Herbicides. Explain leaf drugs as natural pesticides”. – 10 Marks [**Jan 2021**]
 4. Discuss the role of Pyrethrum as natural pesticide. -05 Marks [**Mar 2023**]
 5. Discuss the advantages of natural pesticides. Add a note on the pharmacognosy of Neem.-05 Marks [**May 2022**]

CHAPTER 9-DETAILED STUDY OF VARIOUS CELL CONSTITUENTS

1. Define stomata. Write the nature of various stomata with suitable examples. -05 Marks [**Jun2019**]

CHAPTER 10-CARBOHYDRATES AND RELATED PRODUCTS

1. What are Carbohydrates. How Carbohydrates are classified– 5 Marks [Oct 2022]

CHAPTER 11-DETAILED STUDY CARBOHYDRATES CONTAINING DRUGS. (11 DRUGS)

1. Write the definition, classification, chemistry and qualitative tests for Carbohydrates. – 10 Marks [Mar 2023]
2. Explain in detail about the production, nature, chemistry, uses and various chemical tests for honey. – 10 Marks [Aug 2021]
3. What is agar. How they are prepared from marine sources. Write the pharmaceutical importance of agar. 10 Marks [Dec 2019]
4. Define carbohydrates. Explain the sources, production, nature, chemical constituents, uses and chemical tests for Agar. -10 Marks [Jun 2019]
5. Distinguishing tests between acacia and agar. -05 Marks [May 2022]
6. Source, Active principles and uses of the following”.A. Castor oil b. Agar-05 Marks [Nov 2021]
7. Explain the detailed Pharmacognostical nature of Isapgol. -05 Marks [Aug 2021]
8. Biological source, family, active principle and pharmaceutical importance of the following; Fennel, Agar-05 Marks [Jan 2021]
9. Describe the monograph of Honey-05 Marks [Jan 2021]
10. Write the pharmacognostical nature of Sterculia and Pectin– 5 Marks [Dec 2019]

CHAPTER 12-DEFINITION SOURCES, METHOD EXTRACTION, CHEMISTRY AND METHOD OF ANALYSIS OF LIPIDS.

1. Give the source, method of production, constituents, tests and uses of Castor oil and Chaulmoogra oil. – 10 Marks [Oct 2022]
2. Define lipids. Explain the pharmacognostical nature of lipids used as cathartic properties– 10 Marks [Aug 2021]
3. Write the source, method of extraction, chemistry and method of analysis of lipid containing drugs– 10 Marks [Dec 2019]
4. Describe preparation of Bees wax and Shark liver oil. – 5 Marks [Mar 2023]
5. What are Lipids. Explain different methods of estimation of Lipids – 5 Marks [Mar 2023]

6. Define Iodine value and its significance. Explain a method for its determination. – 5 Marks [Mar 2022]
7. Write a note on preparation of cocoa butter and olive oil. – 5 Marks [Oct 2022]
8. Methods of analysis of lipids– 5 Marks [Nov 2021]
9. Define lipids. Explain the pharmacognostical nature of lipids used as cathartic properties– 5 Marks [Aug 2021]
10. What are the various quantitative methods used to check the purity of fixed oil– 5 Marks [Jan 2021]
11. Write the production, description, chemistry and uses of shark liver oil– 5 Marks [Dec 2019]

CHAPTER 13- DETAILED STUDY OF OILS

1. Source, Active principles and uses of the following”. A.Castor oil b. Agar– 5 Marks [Nov 2021]
2. Describe essential oils. Mention the sources, production, constituents and uses of Fennel– 5 Marks [Aug 2021]
3. Explain the extraction methods of fixed oil– 5 Marks [Jan 2021]
4. What are the various quantitative methods used to check the purity of fixed oil– 5 Marks [Dec 2019]
5. What are the general extraction methods of essential oils– 5 Marks [Dec 2019]

CHAPTER 14-DEFINITION, CLASSIFICATION, CHEMISTRY AND METHOD OF ANALYSIS OF PROTEIN

1. What are proteins. Explain the chemistry and methods of analysis of proteins. -10 Marks [May 2022]
2. Write the source, preparation, tests and uses of Gelatin– 5 Marks [Mar 2023]
3. Define and classify Proteins– 5 Marks [Mar 2023]
4. Definition, classification and general test for proteins– 5 Marks [Nov 2021]
5. Define proteins. Add a note on any one protein containing drug.– 5 Marks [Jan 2021]
6. Chemistry of proteins. – 5 Marks [Dec 2019]
7. Write the sources, collection, macroscopy, chemical constituents, uses and substitutes of gelatin. - 5 Marks [Jun 2019]
8. Write the various chemical tests involved in the identification of gelatin.- 5 Marks [Jun 2019]

CHAPTER 15-STUDY OF PLANTS FIBERS USED IN SURGICAL DRESSINGS AND RELATED PRODUCTS.

1. Explain in detail about plant fibres used in surgical dressings with their pharmacognostical nature. -10 Marks [**June 2019**]
2. Give the sources, constituents, preparation and uses of cotton. – 5 Marks [**Oct 2022**]
3. Explain in detail about Cotton– 5 Marks [**Aug 2021**]
4. Explain surgical dressings with anyone example – 5 Marks [**Jan 2021**]
5. Explain absorbent cotton. - 5 Marks [**Dec 2019**]
6. Explain in detail about surgical catgut – 5 Marks [**Jan 2019**]

CHAPTER 16-DIFFERENT METHODS OF ADULTERATION OF CRUDE DRUGS

1. Define the term adulterant. Give the methods of intentional adulteration of crude drugs with examples. -10 Marks [**Nov 2021**]
2. What is adulteration? Discuss various methods of adulteration– 5 Marks [**Oct 2022**]
3. Define adulteration in crude drugs and give the different methods of adulteration with suitable examples. – 5 Marks [**May 2022**]
4. Explain the following terms: Admixture, Sophistication, Spoilage, Inferiority and Deterioration– 5 Marks [**Dec 2019**]



PHARMACOLOGY – I
(QP CODE: 204326)

1. GENERAL PHARMACOLOGY

1. Enumerate different routes of drug administration and write the merits and demerits of oral and parenteral routes of drug administration. (10 Marks) **(Mar 2023)**
2. Define biotransformation. Explain briefly phase I and II reactions.(5 Marks) **(Mar 2023)**
3. Classify receptor super families with examples. Explain the signal transducer mechanisms operating in G protein coupled receptor involving cAMP. (10 Marks) **(Oct 2022)**
4. Enumerate the routes of administration of drugs with one example each. Explain the advantages and disadvantages of any two routes of administration. (10 Marks) **(May 2022)**
5. Classify receptors and add a note on G Protein coupled receptors. (5 Marks) **(Nov 2021)**
6. Explain drug interactions. (5 Marks) **(Nov 2021)**
7. How pH can affect drug absorption explain with example. (5 Marks) **(Aug 2021)**
8. Explain food – drug interactions. Explain the phenomena with example. (5 Marks) **(Aug 2021)**
9. Describe the various routes of drug administration. (5 Marks) **(Jan 2021)**
10. Pre-clinical evaluations of new drugs. (5 Marks) **(Jan 2021)**
11. Write briefly about the phases involved in Bio-transformation. (5 Marks) **(Dec 2019)**
12. What are the factors influencing drug absorption. (5 Marks) **(Dec 2019)**
13. Explain different types of antagonism with suitable drugs. (10 Marks) **(Dec 2018)**
14. Define bioavailability. Discuss the various factors affecting bioavailability of drugs. (10 Marks) **(Jun 2018)**
15. Enumerate the different routes of drug administration and mention the advantages and disadvantages of oral and parenteral route. (5 Marks) **(Jan 2018)**

2. PHARMACOLOGY OF DRUGS ACTING ON ANS

1. Classify cholinergic drugs with examples, explain the pharmacology of acetylcholine. (10 Marks) **(Mar 2023)**

2. Describe the cholinergic transmission and drugs affecting it. Add a note on the sites of release of Ach in ANS. (10 Marks) **(May 2022)**
3. Describe the mechanism of action of anticholinesterases. Enumerate their therapeutic uses. (10 Marks) **(May 2022)**
4. Classify anticholinergic drugs with suitable examples. Give the treatment & symptoms of atropine poisoning. Write a note on side effects of atropine. (10 Marks) **(Aug 2021)**
5. Explain myasthenia gravis. Mention the drugs used for the treatment of Myasthenia Gravis. (5 Marks) **(Nov 2021)**
6. State the therapeutic uses of adrenergic blockers. (5 Marks) **(Aug 2021)**
7. Give the mechanism of action and therapeutic uses of Bromocriptine and Neostigmine. (5 Marks) **(Aug 2021)**
8. Explain organophosphorus compound poisoning. (5 Marks) **(Jun 2019)**
9. Define the term mydriatics and miotics and mention two examples each. (5 Marks) **(Jun 2019)**
10. Classify anti-cholinergic agents. Explain the mechanism of action, pharmacological actions, adverse effects and therapeutic uses of Atropine. (10 Marks) **(Dec 2019)**
11. Give the pharmacological actions and therapeutic uses of Tropicamide and Carbachol. (5 Marks) **(Dec 2018)**
12. Compare and contrast skeletal muscle relaxants d tubocurarine and succinylcholine. (5 Marks) **(Dec 2018)**
13. Pharmacokinetic interactions with examples. (5 Marks) **(Jun 2018)**
14. Explain the mechanism of action and therapeutic uses of cholinesterase inhibitors. (5 Marks) (Jun 2018)
15. .Describe the drugs used for the treatment of myasthenia gravis. (5 Marks) **(Jan 2018)**

3. PHARMACOLOGY OF DRUGS ACTING ON CARDIOVASCULAR SYSTEM

1. Define and classify antihypertensive agents with examples. Explain the mechanism of action and therapeutic uses of ACE inhibitors. (10 Marks) **(Mar 2023)**
2. Classify Antihypertensive drugs with examples. Discuss the mechanism of action of ACE inhibitors. Outline the major adverse effects of beta-blockers. (10 Marks) **(Oct 2022)**
3. With a neat diagram, explain the physiology of cardiac action potential of the Purkinje fibres. Point out how different antiarrhythmic drugs could affect these. (10 Marks) **(May 2022)**
4. Describe the different drugs which interfere with the renin- angiotensin system in maintaining the blood pressure. (5 Marks) **(Oct 2022)**
5. Explain the adverse effects, pharmacological action and uses of angiotensin converting enzyme inhibitors. (5 Marks) **(Nov 2021)**
6. Classify drugs used in congestive cardiac failure. Explain the mechanism of action, pharmacological actions and adverse effects of digoxin. (10 Marks) **(Nov 2021)**
7. What are ARBs. Give example. Give its mechanism of action and therapeutic uses. (5 Marks) **(Aug 2021)**
8. Explain HMG-CoA reductase inhibitors. (5 Marks) **(Jan 2021)**
9. Explain angina. Classify antianginal agents. Explain, in detail, the pharmacology of nitrates. (10 Marks) **(Jan 2021)**
10. Classify anti-hypertensives drugs. Discuss the mechanism of action, adverse drug reactions and uses of ACE inhibitors and beta blockers. (10 Marks) **(Dec 2019)**
11. Define arrhythmias and mention the classification of anti arrhythmics. Enumerate mechanism of action, adverse effects, pharmacological action and uses of any one class of anti arrhythmics. (10 Marks) **(Jun 2019)**
12. Classify anti-hypertensive drugs. (5 Marks) **(Jun 2019)**
13. Classify antihypertensive drugs with suitable example. State the mechanism of action and side effects of telmisartan. (10 Marks) **(Dec 2018)**
14. Briefly write on class I anti-arrhythmic drugs. (5 Marks) **(Dec 2018)**
15. Write a note on adrenergic Beta-blockers. (5 Marks) **(Dec 2018)**

16. What are cardio tonics. Explain the mechanism of action, adverse effects and therapeutic uses of digitalis. (10 Marks) **(Jun 2018)**
17. HMG-CoA reductase inhibitors. (5 Marks) **(Jun 2018)**
18. Classify local anesthetics with examples and mention their clinical uses. (5 Marks)**(Jun2018)**
19. Classify the drugs used in Parkinsonism with examples. Describe the pharmacology of levodopa. (5 Marks) **(Jun 2018)**
20. Classify anti-anginals with examples. Explain the mechanism of action and adverse effects of nitro-vasodilators. (10 Marks) **(Jan 2018)**
21. Classify sympatholytics with examples. Describe the pharmacology of propranolol. (5 Marks) **(Jan 2018)**
22. Classify anti-hypertensives and explain the pharmacology of ACE inhibitors. (5 Marks) **(Jan 2018)**

4. PHARMACOLOGY OF DRUGS ACTING ON CENTRAL NERVOUS SYSTEM

1. Define and classify general anesthetics; explain the stages of general anesthesia. (5Marks) (Mar 2023)
2. Classify anti-convulsants with examples; write the mechanism of action and therapeutic uses of phenytoin. (5Marks) **(Mar 2023)**
3. Classify anticonvulsant drugs with examples. List the adverse effects of phenytoin. Explain two drug interactions involving phenytoin.(10 Marks) **(Oct 2022)**
4. Write the mechanism of action, adverse effects and uses of chlorpromazine. (5Marks) **(Oct 2022)**
5. Classify NSAIDs. Describe the mechanism of action of NSAIDs. (5Marks) **(Oct 2022)**
6. Classify the drugs used for the management of Parkinsonism. Why levodopa is given with carbidopa. (5Marks) **(Oct 2022)**
7. Add a note on Pre-anaesthetic medication. (5Marks) **(Oct 2022)**
8. Describe the pharmacology of GABA-A receptor and drug affecting it. (5Marks) **(May 2022)**
9. Discuss the mechanism of action of local anaesthetics. (5Marks) **(May 2022)**
10. Classify anti-depressants. Write the mechanism of action, pharmacological actions

- and therapeutic uses of tricyclic anti-depressants. (10 Marks) **(Nov 2021)**
11. With a neat diagram explain different planes of anaesthesia inducement. (10 Marks) **(Aug 2021)**
12. Define epilepsy. Write the classification of antiepileptics. Enumerate phenytoin with mechanism of action, adverse effects and pharmacological action. (10 Marks) **(Jan 2021)**
13. Explain the pharmacological actions of COX-2 inhibitors. (5Marks) **(Nov 2021)**
14. Partial opioid agonist. (5Marks) **(Aug 2021)**
15. Explain the stages of general anaesthesia. (5Marks) **(Jan 2021)**
16. Explain the reason for the combination of carbidopa and levodopa. (5Marks) **(Jan 2021)**
17. Explain the mechanism of action and adverse effects of diazepam. (5Marks) **(Jan 2021)**
18. Define and classify local anesthetics. Write the mechanism of action and uses of lignocaine. (5Marks) **(Dec 2019)**
19. Write the mechanism of action and uses of disulfiram. (5Marks) **(Dec 2019)**
20. Pre anesthetic medication. (5Marks) **(Dec 2019)**
21. Define and classify local anesthetics and mention the mechanism of action and uses of lignocaine. (5Marks) **(Jun 2019)**
22. Treatment for anxiety disorders. (5Marks) **(Jun 2019)**
23. Classify NSAIDs. Write the pharmacological actions and the therapeutic uses of aspirin. (10 Marks) **(Dec 2019)**
24. Define parkinsonism. Classify the anti-parkinsonism drugs and explain the mechanism of action, drug interactions and uses of dopamine precursors. (10 Marks) **(Jun 2019)**
25. Explain the mechanism of action, pharmacological action, adverse reaction and therapeutic uses of salicylates. (10 Marks) **(Jun 2019)**
26. Classify NSAIDS. Explain the pharmacology of salicylates. (10 Marks) **(Jun 2018)**
27. Classify antipsychotics with examples. Discuss the mechanism of action and adverse effects of chlorpromazine. (10 Marks) **(Jan 2018)**

28. Explain treatment of methanol poisoning. (5Marks) **(Dec 2018)**
29. Write the mechanism of action, therapeutic uses and side effects of lidocaine. (5Marks) **(Dec 2018)**
30. Classify anti-inflammatory drugs with example. (5Marks) **(Dec 2018)**
31. Aversion therapy in the treatment of alcoholism. (5Marks) **(Jun 2018)**
32. Pharmacology of lidocaine and its therapeutic uses. (5Marks) **(Jan 2018)**
33. Classify anti convulsants. Explain the mechanism of action and pharmacological actions of diazepam. (5Marks) **(Jan 2018)**
34. Drug therapy of parkinsonism. (5Marks) **(Jan 2018)**

5. PHARMACOLOGY OF DRUGS ACTING ON RESPIRATORY TRACT

1. What is the role of cromolyn sodium in asthma. What will happen if corticosteroids therapy is stopped abruptly after prolonged use. (5 Marks) **(Oct 2022)**
2. Explain the mechanisms of any two classes of drugs for bronchial asthma. (5 Marks) **(May 2022)**
3. Explain nasal decongestants. (5 Marks) **(Nov 2021)**
4. Give the mechanism of action and therapeutic uses of Budesonide and Bromhexine. (5 Marks) **(Aug 2021)**
5. Define asthma. Classify anti-asthmatic drugs and explain about mast cell stabilizer. (10 Marks) **(Jan 2021)**
6. What are antitussives. Classify and explain their pharmacology. (5 Marks) **(Dec 2019)**
7. Bronchodilators. (5 Marks) **(Jun 2019)**
8. Classify drugs used in the treatment of bronchial asthma with examples. Add a note on mucolytics. (5 Marks) **(Jun 2018)**

6. PHARMACOLOGY OF HORMONES AND HORMONE ANTAGONISTS

1. Define and classify anti-thyroid drugs. Write the pharmacological action of any one drug. (5 Marks) **(Mar 2023)**
2. Explain the mechanism of action of any two oral hypoglycaemic agents. (5 Marks) **(Oct 2022)**
3. Oral contraceptives. (5 Marks) **(Oct 2022)**

4. Classify hypolipidaemic drugs with examples. Describe the mechanism of action of any one class. (5 Marks) **(May 2022)**
5. Explain any one therapeutically useful pharmacological action of a steroidal drug. (5 Marks) **(May 2022)**
6. Explain the mechanism of Sitagliptin. (5 Marks) **(May 2022)**
7. Classify oral hypoglycemic agents. Discuss the mechanism, pharmacological actions and side effects of sulfonylureas. (10 Marks) **(Nov 2021)**
8. Give the mechanism of action of: • Diethylstilboestrol • Clomiphene • Carbimazole • Isoxsuprine • Thiocyanate. (10 Marks) **(Aug 2021)**
9. Discuss the pharmacology of drugs used in the treatment of hyperthyroidism. (5 Marks) **(Nov 2021)**
10. Explain oral contraceptives. (5 Marks) **(Jan 2021)**
11. What are antithyroid drugs? Write the uses of the same. (5 Marks) **(Dec 2019)**
12. Pharmacological actions and therapeutic uses of oxytocin. (5 Marks) **(Jun 2019)**
13. State different types of insulin preparations available in the market. Write the pharmacological and mechanism of action of Insulin. (10 Marks) **(Dec 2018)**
14. Classify oral hypoglycemic agents. Explain the pharmacological actions of sulphonyl urea derivatives. (5 Marks) **(Jan 2018)**

7. PHARMACOLOGY OF AUTOCOIDS AND THEIR ANTAGONISTS

1. Define autacoids. Write the pharmacology of histamine.(5 Marks) **(Mar 2023)**
2. Classify antihistaminics and mention its uses. (5 Marks) **(May 2022)**
3. Explain the synthesis, storage and metabolism of 5-Hydroxytryptamine. (5 Marks) **(Nov 2021)**
4. State the pharmacological actions of prostaglandin(5 Marks) **(Aug 2021)**
5. Classify histamine 2 receptor antagonists. List their therapeutic uses and adverse effects. (5 Marks) **(Dec 2019)**
6. Platelet activating factor. (5 Marks) **(Jun 2019)**
7. Briefly write on 5 HT3 antagonist. (5 Marks) **(Dec 2018)**
8. Explain the pharmacological actions of histamine(5 Marks) **(Jun 2018)**
9. Classify H1 receptor antagonists with examples. Describe their pharmacological actions and therapeutic uses. (5 Marks) **(Jan 2018)**

\



COMMUNITY PHARMACY
(Q.P. Code: 205326)

CHAPTER 1: DEFINITION, SCOPE, OF COMMUNITY PHARMACY ROLES AND RESPONSIBILITIES OF COMMUNITY PHARMACIST.

1. Scope of community pharmacy. – 5 Mark [**October 2022**]
2. Explain the scope of community pharmacy in India. - 5 Mark [**May 2022**], [**December 2018**].
3. Roles and responsibilities of community pharmacists. – 5 Mark [**November 2021**]
4. Define community pharmacy. Describe the roles and responsibilities of community pharmacist. – 10 Mark [**August 2021**].
5. Discuss the scope of community pharmacy practice in India. Add a note on the role and responsibilities of community pharmacist. – 10 Mark [**December 2019**].

CHAPTER 2: COMMUNITY PHARMACY MANAGEMENT

1. Write briefly about selection of site, space layout and design of a community pharmacy. – 5 Mark [March 2023], [January 2018], [December 2018].
2. What are different Steps involved in the selection of site for community pharmacy. – 5 Mark [**May 2022**].
3. Various registers for community pharmacy management. - 5 Mark [**November 2021**].
4. Legal requirements for community pharmacy management. - 5 Mark [**January 2021**].
5. Uses of computer in community pharmacy. - 5 Mark [**March 2023**], [**October 2022**], [**June 2019**].
6. Design and layout of a community pharmacy. - 5 Mark [**December 2019**].

CHAPTER 3: PRESCRIPTIONS

1. Explain various parts of a prescription. - 5 Mark [**March 2023**].
2. Define prescription. Give examples of drug-drug interactions. - 5 Mark [**May 2022**].
3. Define prescription. Explain the various parts of prescription and add a note on prescription handling. – 10 Mark [**January 2021**].
4. Structure of a prescription. – 5 Mark [**June 2018**].
5. Define prescription and discuss the parts of prescription. - 5 Mark [**January 2018**].
6. Define prescription. Explain the parts and legality of prescription. – 10 Mark [**December 2018**].

CHAPTER 4: INVENTORY CONTROL IN COMMUNITY PHARMACY

1. Compare ABC and VED analysis techniques in inventory control. – 5 Mark [**March 2023**].
2. Describe about definition, function and various techniques of inventory control. - 10Mark [**March 2023**].
3. Define inventory control. List out various methods of inventory control. - 5 Mark [October 2022].
4. What is Lead time and reorder level. - 5 Mark [**May 2022**].
5. Discuss on the various methods of inventory control. - 10 Mark [**January 2021**].
6. Define inventory. Discuss in details on the various methods of inventory control. - 10Mark [**August 2021**].
7. Explain various inventory control techniques with detailed description to ABC andVED analysis. - 10 Mark [**June 2019**].
8. Define inventory control and explain about EOQ method. - 10 Mark [**January 2018**].
9. Explain the lead time and safety stock. - 5 Mark [**January 2018**], [**December 2018**].
10. EOQ analysis. - 5 Mark [**December 2018**].

CHAPTER 5: PHARMACEUTICAL CARE

1. Define pharmaceutical care. Write the functions of pharmaceutical care. - 10 Mark [October 2022].
2. Write about importance of pharmaceutical care. - 5 Mark [**May 2022**].
3. Define pharmaceutical care. Narrate the principles of pharmaceutical care and how willyou apply the principle in secondary care hospital. - 10 Mark [**August 2021**].

CHAPTER 6: PATIENT COUNSELLING

1. Various stages in patient counselling. – 5 Mark [**October 2022**], [**June 2019**].
2. Detail on the communication skill needed for effective counselling. Add a note on qualities of a good counsellor. - 10 Mark [**November 2021**].

3. Barriers in patient counselling. – 5 Mark [**January 2021**].
4. Outcomes of patient counselling. – 5 Mark [**August 2021**], [**December 2019**].
5. Patient counseling barriers and strategies to overcome. – 5 Mark [**June 2018**]. Write the importance of a patient information leaflet. – 5 Mark [**March 2023**].
6. Explain patient information leaflet. – 5 Mark [**May 2022**].
7. Brief on the significance of patient information leaflet in enhancing patient healthcare. – 5 Mark [**November 2021**].
8. Design and advisory label of Patient Information Leaflet. – 5 Mark [**January 2021**].
9. Contents and layout of patient information leaflets. – 5 Mark [**June 2019**].
10. Content, design and layout of patient information leaflet. – 5 Mark [**June 2018**].

CHAPTER 7: PATIENT MEDICATION ADHERENCE

1. Define patient medication adherence. Explain the role of pharmacist in improving the adherence. - 10 Mark [**October 2022**].
2. What are the different methods for measuring the medication adherence. – 5 Mark [**May 2022**].
3. Brief on the importance of medication adherence in drug therapy and mention the ways to improve adherence. – 5 Mark [**January 2021**].
4. Define patient medication adherence. Explain the role of pharmacist in improving the adherence. - 10 Mark [**June 2019**], [**January 2018**].
5. Define medication adherence. Elaborate the factors affecting medication adherence. - 10 Mark [**December 2019**].
6. What is medication adherence. Discuss regarding the factors influencing medication adherence and the role of pharmacist in improving the same. - 10 Mark [**December 2018**].

CHAPTER 8: HEALTH SCREENING SERVICES

1. Discuss briefly about the importance of a health screening test for a community. – 5 Mark [**March 2023**].
2. Explain the screening methods for estimating blood pressure. - 10 Mark [**May 2022**].

3. Blood sugar monitoring. – 5 Mark [**August 2021**], [**December 2019**].
4. Lung function tests. – 5 Mark [**June 2019**], [**June 2018**].
5. Describe the screening of diabetes mellitus in a community pharmacy. – 5 Mark [January 2018].
6. Health screening techniques for diabetes mellitus. – 5 Mark [**December 2018**].

CHAPTER 9: OTC MEDICATION- DEFINITION, OTC MEDICATION LIST & COUNSELLING

1. Importance of OTC medication counselling. - 5 Mark [**March 2023**], [**November 2021**].
2. Define OTC medication. List the categories of OTC medication. - 5 Mark [**October 2022**].
3. List out the OTC medications. - 5 Mark [**August 2021**].
4. Over The Counter medication. - 5 Mark [**December 2019**].
5. Discuss about OTC medication. - 5 Mark [**January 2018**].

CHAPTER 10: Health Education

1. Explain types of hepatitis and its prevention. - 5 Mark [**March 2023**].
2. What are communicable diseases. Explain briefly the role of a community pharmacist. - 5 Mark [**March 2023**].
3. Role of pharmacist in family planning. - 5 Mark [**October 2022**].
4. Explain the etiology and prevention of Tuberculosis and Hepatitis. - 10 Mark [**May 2022**].
5. Discuss the role of community pharmacist in preventing communicable diseases. - 5 Mark [**May 2022**].
6. Discuss on the health care promotion strategies implemented by WHO for pregnant and breastfeeding women. - 10 Mark [**November 2021**].
7. Explain typhoid. - 5 Mark [**November 2021**].
8. Balanced diet. - 5 Mark [**November 2021**].
9. Explain intra-uterine devices. - 5 Mark [**November 2021**].
10. Clinical presentation and prevention of Malaria. - 5 Mark [**January 2021**].
11. Clinical presentation and prevention of hepatitis. - 5 Mark [**January 2021**].

12. Causative organism, Clinical presentation and prevention of tuberculosis. - 5 Mark
[August 2021].
13. Methods of family planning. - 5 Mark [August 2021].
14. Malnutrition disorders. - 5 Mark [August 2021].
15. Family planning methods and its importance. - 5 Mark [June 2019].
16. Explain the causative agent, clinical presentation and prevention of TB. - 10 Mark
[December 2019].
17. Explain the causative organism, clinical manifestations and prevention of AIDS. -
10Mark [June 2018].
18. Explain the etiology, clinical presentations and prevention of AIDS and malaria. -
10Mark [January 2018].
19. Discuss about the care of geriatric patients. - 5 Mark [January 2018].
20. Explain the causative organisms, clinical presentations and prevention of
tuberculosis and malaria. - 10 Mark [December 2018].
21. Causative organisms, clinical manifestations and prevention of hepatitis. - 5 Mark
[December 2018].
22. Define balanced diet. Write a note on vitamin deficiency disorders and its prevention.
-10 Mark [May 2022].
23. Briefly discuss about sexually transmitted disease and their prevention. - 5 Mark
[December 2019].
24. Prevention and treatment of leprosy. - 5 Mark [December 2019].

CHAPTER 11: Responding to symptoms of minor ailments

1. Drug therapy for diarrhoea. - 5 Mark [October 2022].
2. Explain the pathophysiology and common drug therapy for the following diseases:
•Diarrhoea • Dyspepsia. - 5 Mark [January 2021].
3. Worm infestations – symptoms and management. - 5 Mark [August 2021].
4. Pathophysiology and therapy to pyrexia. - 5 Mark [June 2019].
5. Drug therapy for managing pain. - 5 Mark [December 2019].

6. Define pain. Explain the pathophysiology and management of pain. - 10 Mark **[June 2018]**.
7. Pathophysiology and management of vomiting. - 5 Mark **[June 2018]**.
8. The pathophysiology and drug therapy of the dyspepsia. - 5 Mark **[January 2018]**.

CHAPTER 12: Essential Drugs concept and Rational Drug Therapy, Role of community pharmacist

1. Explain the rational use of medication and the role of pharmacist. - 10 Mark **[March 2023]**.
2. Role of pharmacist in rational drug use. - 5 Mark **[October 2022], [June 2018]**.
3. Essential drug concept. - 5 Mark **[November 2021]**.
4. Describe the role of community pharmacist in essential drug concept and rational drug therapy. – 10 Mark **[January 2021]**.
5. Essential drug list. – 5 Mark **[August 2021], [June 2018]**.
6. What are essential drug list and its importance. - 5 Mark **[January 2018]**.

CHAPTER 13: Code of ethics for community pharmacists

1. Explain the code of ethics for community pharmacists. - 10 Mark **[October 2022]**.
2. Elaborate on code of ethics in pharmaceutical care. - 10 Mark **[November 2021]**.
3. Code of ethics in community pharmacy. - 5 Mark **[December 2018]**.

PHARMACOTHERAPEUTICS I

(QP CODE: 206326)



CHAPTER 1: CARDIOVASCULAR SYSTEM

1. Define Hypertension. Give the Joint National Committee classification. List out the different categories of drugs used in the treatment of hypertension with suitable dose and their side effects. 10 marks (**Mar 2023**)
2. What is atherosclerosis and explain the development of atherosclerosis. 5 marks (**Mar2**)
3. Angina pectoris and its management. 5 marks (**Mar 2023**)
4. Classify various types of arrhythmias with suitable examples. 5 marks (**Mar 2023**)
5. Explain in detail about therapeutic management of myocardial infarction. 5 marks (**Oct2**)
6. Use of diuretics in cardiovascular disease. 5 marks (**Oct 2022**)
7. Differentiate angina pectoris and myocardial infarction. 10 marks (**May 2022**)
8. Cholesterol metabolism and hyperlipidaemia. 5 marks (**May 2022**)
9. Drugs for treating supraventricular tachycardia. 5 marks (**May 2022**)
10. Explain the pharmacotherapy of Angina Pectoris. 10 marks (**Nov 2021**)
11. Define pathophysiology of hypertension. 5 marks (**Nov 2021**)
12. Discuss the management of arrhythmias. 10 marks (**Jan 2021**)
13. Explain electrophysiology of heart. 5 marks (**Jan 2021**)
14. Explain the use of statins in hyperlipidaemia. 5 marks (**Jan 2021**)
15. Explain the pathophysiology of myocardial Infarction. 5 marks (**Jan 2021**)
16. Explain management of congestive cardiac failure. 5 marks (**Jan 2021**)
17. Discuss management of hyperlipidaemia. 5 marks (**Aug 2021**)
18. Explain class I anti-arrhythmic drugs. 5 marks (**Aug 2021**)
19. Explain the treatment of myocardial Infarction. 5 marks (**Aug 2021**)
20. Brief the management of hypertension using angiotensin receptor blockers 5 marks (
21. Discuss the etiology and pathogenesis of myocardial infarction. 10 marks (**June 2019**)
22. Classification of antihypertensive drugs. 5 marks (**June 2019**)
23. Management of congestive heart failure. 5 marks (**June 2019**)
24. Describe the etiology, pathogenesis, clinical features and investigations of ischemic heart disease. Write the treatment goals of IHD. 10 marks (**Dec 2019**)
25. Write the definition and etiology of hypertension. 5 marks (**Dec 2019**)

CHAPTER 2: RESPIRATORY SYSTEM

1. What is asthma. How to diagnose asthma based on symptoms and laboratory investigations. What are the lifestyle modification and drugs you prefer to treat asthma patients. 10 marks **(Mar 2023)**
2. Explain in detail about the pathogenesis and management of chronic obstructive airways disease. 10 marks **(Oct 2022)**
3. Define chronic obstructive pulmonary disease. Give its pathophysiology, signs, and symptoms, diagnostic test, and treatment. 10 marks **(May 2022)**
4. List a few examples of drug-induced pulmonary diseases. 5 marks **(May 2022)**
5. Brief on the management of chronic obstructive pulmonary disease. 5 marks **(Nov 2021)**
6. Explain use of various pulmonary function tests. 5 marks **(Nov 2021)**
7. Explain with examples the various drug induced pulmonary diseases. 10 marks **(Jan 2021)**
8. Explain pulmonary function tests. 5 marks **(Jan 2021)**
9. Explain the stepwise management of asthma. 5 marks **(Jan 2021)**
10. Define mechanism of action of anti-asthmatic drugs. 5 marks **(Aug 2021)**
11. Drug induced pulmonary diseases. 5 marks **(June 2019)**
12. Pathogenesis of asthma. 5 marks **(June 2019)**
13. Explain in detail about the etiology, pathophysiology, pharmacotherapy and various triggering factors responsible to produce asthma. 10 marks **(Dec 2019)**
14. How pulmonary function test done. 5 marks **(Dec 2019)**

CHAPTER 3: ENDOCRINE SYSTEM

1. Drugs for the treatment of hyperthyroidism. 5 marks **(Mar 2023)**
2. Pathophysiology of osteoporosis. 5 marks **(Mar 2023)**
3. Enumerate the drug related risks involved in hormone therapy. 5 marks **(Oct 2022)**
4. Describe various forms of hyperthyroidism and its treatment. 5 marks **(Oct 2022)**
5. Explain the importance of thyroid hormones. What pathophysiological changes happen if the thyroid hormones decrease below the normal values. 10 marks **(May 2022)**
6. Hormonal contraceptives and their side effects. 5 marks **(May 2022)**
7. Indications of hormone replacement therapy. 5 marks **(May 2022)**

8. Discuss the management of diabetes using Sulphonyl Ureas and Biguanides. 10 marks (Nov 2021)
9. Explain mechanism of action of oral contraceptives with examples. 5 marks (Nov 2021)
10. Explain pharmacotherapy of hypothyroidism. 5 marks (Nov 2021)
11. Explain management of osteoporosis. 5 marks (Nov 2021)
12. Define hormone replacement therapy 5 marks (Jan 2021)
13. Explain the pharmacotherapy of thyroid diseases. 10 marks (Aug 2021)
14. Explain the mechanism of action of metformin in the treatment of diabetes. 5 marks (Aug 2021)
15. Explain pathophysiology of osteoporosis. 5 marks (Aug 2021)
16. Explain hormone replacement therapy. 5 marks (Aug 2021)
17. Discuss about various complications and therapeutic management of diabetes mellitus. 10 marks (June 2019)
18. Therapeutic management of hyperthyroidism. 5 marks (June 2019)
19. Pathogenesis of osteoporosis. 5 marks (June 2019)
20. Describe the etiology, pathogenesis, clinical features and investigations of diabetes. Explain the treatment protocol of the same. 10 marks (Dec 2019)
21. Write the etiology and pathogenesis of osteoporosis. 5 marks (Dec 2019)
22. Hormonal oral contraceptives. 5 marks (Dec 2019)

CHAPTER 4: GENERAL PRESCRIBING GUIDELINES

1. Common problems encountered while treating geriatric patients. Role of pharmacist in rectifying the same. 10 marks (Mar 2023)
2. Prescribing guidelines for pediatric patients. 5 marks (Mar 2023)
3. Describe about general prescribing guidelines for pregnancy. 10 marks (Oct 2022)
4. Illustrate the geriatric related pharmacokinetic factors and their clinical significance. 5 marks (Oct 2022)
5. General prescribing guidelines for breast feeding women. 5 marks (Oct 2022)
6. Formula to calculate the child's dose. 5 marks (May 2022)

7. Describe the general prescribing guidelines to paediatrics. 10 marks **(Nov 2021)**
8. Describe the general prescribing guidelines to geriatrics. 10 marks **(Jan 2021)**
9. Discuss the general prescribing guidelines to pregnancy and breast feeding. 10 marks **(Aug 2021)**
10. Describe about general prescribing guidelines for pediatric patients. 10 marks **(June 2019)**
11. What are the factors to be considered while prescribing for geriatric patients. 5 marks **(Dec 2019)**

CHAPTER 5: OPHTHALMOLOGY

1. Define conjunctivitis. Drugs for bacterial conjunctivitis. 5 marks **(Mar 2023)**
2. Define glaucoma. Explain the pathophysiology and pharmacotherapy in the management of glaucoma. 10 marks **(Oct 2022)**
3. Viral and bacterial conjunctivitis. 5 marks **(Oct 2022)**
4. Drugs for the treatment of glaucoma. 5 marks **(May 2022)**
5. Describe treatment for bacterial conjunctivitis. 5 marks **(Nov 2021)**
6. Brief the management of various types of glaucoma 5 marks **(Jan 2021)**
7. Types of glaucoma and management. 5 marks **(June 2019)**
8. Pharmacotherapeutic management of glaucoma. 5 marks **(Dec 2019)**
9. What are the clinical manifestations and management of conjunctivitis 5 marks **(Dec 2019)**

CHAPTER 6: INTRODUCTION TO RATIONAL DRUG USE

1. Essential drug concept. 5 marks **(Mar 2023)**
2. What are the steps to be followed for rational drug use 5 marks **(Oct 2022)**
3. Why medicines are selected irrationally. 5 marks **(May 2022)**
4. Explain rational use of drugs. Give examples. 5 marks **(Nov 2021)**
5. Describe the role of pharmacist in rational use of drugs. 10 marks **(Aug 2021)**
6. Explain about rational drug use. 5 marks **(June 2019)**
7. The role of pharmacist in essential drug concept. 5 marks **(Dec 2019)**

**PUSHPAGIRI COLLEGE OF PHARMACY,
MEDICITY CAMPUS, THIRUVALLA**





PHARMACOLOGY II
(QP CODE: 301326)

CHAPTER I - PHARMACOLOGY OF DRUGS ACTING ON BLOOD AND BLOOD FORMING AGENTS.

1. Classify anti-platelet drugs (5 10 marks) (August 2023).
2. Hematopoietic growth factors (5 10 marks) (August 2023).
3. Classify anti-platelet drugs and explain mechanism of action and therapeutic uses of Clopidogrel (5 10 marks) (February 2023).
4. Classify the antiplatelet drug (5 10 marks) (August 2022).
5. Classify antiplatelet drugs with examples. Explain the process of hemostasis and mechanism of action of aspirin. Mention therapeutic uses and side effects of aspirin (10 10 marks) (April 2022).
6. Depict the absorption, transport, utilization, and storage of iron. Mention two oral preparations of iron (5 10 marks) (April 2022).
7. Explain the coagulation pathway and the action of coagulants with a diagram. Mention three clinical uses of coagulants. Name two drugs that can restore hemostasis (10 10 marks) (August 2021).
8. Vitamin B12 and folic acid as maturation factors (5 10 marks) (August 2021).
9. Classify anticoagulants with examples. Discuss the mechanism of action of oral anticoagulants. Mention their uses and side effects (10 10 marks) (February 2021).
10. The mechanism of action, adverse drug reaction and therapeutic uses of clopidogrel (5 10 marks) (January 2020).
11. Plasma volume expander (5 10 marks) (January 2020).
12. Classify diuretics according to their sites of action. Explain the mechanism of action, pharmacological effects, therapeutic uses and adverse effects of loop diuretics (10 10 marks) (June 2019).
13. List out various antithrombotic drugs. Add a note on ticlopidine (5 10 marks) (January 2019).

CHAPTER II -PHARMACOLOGY OF DRUGS ACTING ON RENAL SYSTEM

1. What are Thiazide Diuretics. Give example. Write the Pharmacological action, therapeutic uses and adverse reactions of any one Thiazide Diuretics (10 10 marks) (February 2023).
2. Potassium sparing diuretics (5 10 marks) (August 2022).
3. Explain the pharmacology of furosemide (5 10 marks) (August 2022).

4. Explain tubular reabsorption transport mechanisms involved in the formation of urine. Discuss how diuretics affect the tubular reabsorption mechanism **(5 10 marks) (April 2022)**.
5. Define Diuretics. Classify diuretics according to their site of action and brief the loop diuretics **(10 marks) (December 2021)**.
6. Diuretics acting on proximal convoluted tubule **(5 10 marks) (August 2021)**.
7. Outline the mechanism of action of loop diuretics. Comment on the role of diuretics in the management of CHF **(5 10 marks) (February 2021)**.
8. Define antidiuretic. Mention the receptor and clinical uses of vasopressin **(5 10 marks) (January 2020)**.
9. Receptors and therapeutic uses of vasopressin **(5 10 marks) (June 2019)**.
10. Classify diuretics. Discuss the mechanism of action and uses of osmotic diuretics **(5 10 marks) (January 2019)**.

CHAPTER III - CHEMOTHERAPY

1. Draw a diagram depicting the life cycle of plasmodia and indicate the sites of action of anti-malarial drugs explain the terms: radical cure and casual prophylaxis **(10 10 marks) (August 2023)**.
2. Classify antifungal drugs, write the MOA of Fluconazole **(5 10 marks) (August 2023)**.
3. Chemotherapy involved in leprosy **(5 10 marks) (August 2023)**.
4. What is the source and mode of transmission of TB. Explain the treatment procedure and precautions to be taken in TB treatment **(10 10 marks) (February 2023)**.
5. Chemotherapy involved in Leprosy **(5 10 marks) (February 2023)**.
6. Classify antifungal drugs, write the MOA of Fluconazole **(5 10 marks) (February 2023)**.
7. Explain Cotrimoxazole **(5 10 marks) (February 2023)**.
8. Write a note on anti-amoebic drugs **(5 10 marks) (February 2023)**.
9. Therapeutic uses of ciprofloxacin **(5 10 marks) (February 2023)**.
10. Classify aminoglycoside antibiotics. State the pharmacological actions, mechanism of action and therapeutic uses **(10 10 marks) (August 2022)**.
11. Classify antiviral drugs, pharmacological actions and therapeutic uses **(10 10 marks) (August 2022)**.
12. Classify anticancer agents **(5 10 marks) (August 2022)**.

13. Chemotherapy involved in leprosy (5 10 marks) (August 2022).
14. With the help of a neat diagram, describe the replication cycle by an HIV virion and the sites of action of antiviral drugs (10 10 marks) (April 2022).
15. Classify alkylating agents with examples. Discuss the mechanism of action and adverse effects of Cyclophosphamide. What is the rationale of using mesna in cyclophosphamide therapy (10 10 marks) (April 2022).
16. Mechanism of action of fluoroquinolones. What is gray baby's syndrome (5 10 marks) (April 2022).
17. Mechanism of action of ketoconazole. Concurrent administration of erythromycin and ketoconazole is dangerous. Why (5 10 marks) (April 2022).
18. Classify anti-tubercular drugs with examples. Describe the mechanism of action and adverse effects of any two first line anti-TB drugs (10 10 marks) (February 2021).
19. Describe the various phases of cell cycle. With a neat diagram, indicate the major sites of action of cytotoxic agents (10 10 marks) (February 2021).
20. Classify antimalarial drugs. Outline the mechanism of action and adverse effects of chloroquine (5 marks) (February 2021).
21. Mechanism of action and adverse effects of cotrimoxazole (5 marks) (February 2021).
22. Discuss the mechanism of action of cyclosporine with a neat labeled diagram (5 marks) (February 2021).
23. Mechanism of action of aminoglycosides (5 marks) (February 2021).
24. Define cancer. Classify the anticancer drugs with example. Describe the mechanism and therapeutic uses of antimetabolite (10 M) (December 2021).
25. Classify anti-microbial agents with suitable examples and mechanism of action of tetracycline antibiotics (10 M) (December 2021).
26. Classify the anti-tubercular drugs (5 marks) (December 2021).
27. Anti-amoebic drugs (5 marks) (December 2021).
28. Brief the nucleotide reverse transcriptase inhibitors (5 marks) (December 2021).
29. Classify antifungal antibiotic (5 marks) (December 2021).
30. The therapeutic uses of ciprofloxacin (5 marks) (December 2021).
31. Discuss the pharmacology of penicillins (5 marks) (December 2021).
32. Describe the mechanism of action of tetracycline. Mention its therapeutic uses. Comment on superinfection 10 Marks [August 2021]

33. Classify anti-malarial drugs with examples. Describe the life cycle of malarial parasite and the site of action of anti-malarial drugs. . 10 M [**August 2021**]
34. Mechanism of action of isoniazid. 5 marks [**August 2021**]
35. Mechanism of action of methotrexate. Folic acid cannot reverse methotrexate toxicity. Give reason and a suitable alternative. 5 marks [**August 2021**]
36. Describe the mechanism of action and therapeutic uses of acyclovir. 5 marks [**August 2021**]
37. Mechanism of action of ciprofloxacin. Why ciprofloxacin is contraindicated in pediatric patients to treat infections. 5 marks [**August 2021**]
38. Classify the drugs used in treatment of malaria with suitable example. Describe the mechanism of action, pharmacokinetic, adverse effect and use of chloroquine. 10 M [**January 2020**]
39. State the mechanism of action and therapeutic uses of
- Cephalosporins Ferrous compounds. 5 marks [**January 2020**]
40. Co-trimoxazole. 5 marks [**January 2020**]
41. Discuss the life cycle of malarial parasite. Classify anti-malarial drugs and explain mechanism of action, adverse effects and therapeutic uses of chloroquine. 10 M [**June 2019**]
42. Nucleoside and nucleotide reverse transcriptase inhibitors. 5 marks [**June 2019**]
43. Explain the mechanism of development of bacterial resistance to antibiotics. 5 marks [**June 2019**]
44. Classify antimalarial drugs and discuss the mechanism of action, adverse drug reactions and uses of chloroquine. 10 M [**January 2019**]
45. Classify cephalosporins and mention its adverse effects. 5 marks [**January 2019**]
46. Discuss the mechanism of antibiotics interfere with protein synthesis. 5 marks [**January 2019**]
47. Classify antileprotic drugs. Discuss the mechanism of dapsone. 5 marks [**January 2019**]
48. Discuss the pharmacology of metronidazole. 5 marks [**January 2019**]

CHAPTER IV - IMMUNOPHARMACOLOGY

1. Therapeutic uses and adverse effects of Immunosuppressant's. 5 marks [**February 2023**]

2. What are immunosuppressants. Give their uses. 5 marks [**August 2023**]
3. Classify the immunosuppressant. Describe the mechanism of action, adverse drug reaction and therapeutic uses of mycophenolate mofetil. 10 M[**August 2022**]
4. Mechanism of action of immunosuppressive agents. 5 marks [**April 2022**]
5. Calcineurin inhibitors. 5 marks **December 2021**]
6. Classify the immunosuppressants and its clinical application. 5 marks [**January 2020**]
7. Immunosuppressive corticosteroids. 5 marks [**June 2019**]
8. Classify immunosuppressants with suitable examples. Discuss the mechanism and uses of calcineurin inhibitors. 10 M[**January 2019**]

CHAPTER V - PRINCIPLES OF ANIMAL TOXICOLOGY

1. Sub-acute and Chronic Toxicity studies. 5 marks [**February 2023**]
2. Explain the importance of chronic toxicity study in preclinical studies. 5 marks [**April 2022**]
3. Explain the importance of acute toxicity study in preclinical studies. Name any two special toxicity studies conducted. 5 marks [**February 2021**]
4. Sub-acute and chronic toxicity studies. 5 marks [**January 2020**]
5. What is chronic toxicity study and explain its importance in preclinical studies. 5 marks [**June 2019**]

CHAPTER VI - THE DYNAMIC CELL: THE STRUCTURES AND FUNCTIONS OF THE COMPONENTS OF THE CELL.

1. Explain the cell signal transduction pathways involving Kinases. 10 10 marks [**February 2023**]
2. Draw a neat labelled diagram of cell. List the organelles, write their functions. 10 marks [**August 2023**]
3. Biosensors. 5 marks [**August 2023**]
4. Janus kinase pathway. 5 marks [**August 2022**]
5. Biosensors. 5 marks [**August 2022**]
6. Ligand gated ion channel. 5 marks [**April 2022**]
7. PI3 kinase pathway. 5 marks [**February 2021**]
8. Translation in prokaryotes. What are the functions of histones. 5 marks [**August 2021**]
9. Explain the positive and negative regulators of cell cycle. 5 marks [**August 2021**]

10. How cell cycle is regulated. Explain the different phases of cell cycle and factors regulating it. 10 marks **[January 2020]**

11. MAP kinase pathway. 5 marks **[June 2019]**

CHAPTER VII - THE GENE: GENOME STRUCTURE AND FUNCTION

1. Define gene therapy. Write a note on the application of gene therapy and target diseases. 10 marks **[August 2023]**
2. DNA replication. 5 marks **[August 2023]**
3. DNA replication. 5 marks **[August 2022]**
4. Transcription in prokaryotes. 5 marks **[April 2022]**
5. Histone deacetylases. 5 marks **[December 2021]**
6. mRNA processing. 5 marks **August 2021]**
7. Explain gene transcription and various factors that regulate transcription. 10 marks **[January 2020]**
8. Recombinant technology and its application. 5 marks **[January 2020]**
9. Explain gene transcription and various factors that regulate transcription. 10 marks **[June 2019]**
10. Histone deacetylases. 5 marks **[June 2019]**
11. Briefly explain translocation and tumor suppressor gene. 5 marks **[June 2019]**
12. Discuss the principles, process and applications of recombinant DNA technology. 10 marks **[January 2019]**
13. Bacterial DNA replication. 5 marks **[January 2019]**
14. . Vectors used in gene transfer. 5 marks **[January 2019]**

PHARMACEUTICAL ANALYSIS

(Q.P CODE: 302326)



CHAPTER 1: QUALITY ASSURANCE

7. Define validation and explain the validation of equipment and analytical instruments-
10 Marks[**Aug 2023**]
8. Write down the validation parameter during method development.-5 Marks
[**Feb 2023**][**Aug 2022**]
9. Describe total quality management. -10 Marks[**Dec 2021**]
10. Write a note on statistical quality control-5 Marks [**Dec 2021**]
11. Describe sources of quality variation in drug substances. Explain the methods to control the same.- 10 Marks[**Aug 2021**]
12. Calibration of analytical equipments.-5 Marks [**Feb 2021**]
13. How is a new analytical method for a drug product validated as per ICH guidelines.Explain in detail-10 Marks[**Jan 2020**]
14. Enlist and briefly explain the elements of good laboratory practices.-5 Marks[**Jan 2020**]
15. The concepts of ISO 9000.-5 Marks[**June 2019**]
16. Explain validation methods, quality of equipment and validation of analytical instruments as per guidelines.-10 Marks[**June 2019**]

CHAPTER 2: CHROMATOGRAPHY

- 1.Detail the construction of HPLC and its applications-10 Marks [**Aug 2023**]
2. Write the plate preparation techniques in TLC-5 Marks [**Aug 2023, Dec 2021**]
3. Write in detail about the Working Concept and Instrumentation of HPLC. Discuss about Various terms used in chromatographic analysis.-10 Marks [**Feb 2023**]
4. Briefly explain about column packing and elution techniques-5 Marks [**Feb 2023**]
5. Write down the principle and separation of gel electrophoresis and its application -5 Marks [**Feb 2023**]
- 6.With a neat diagram, explain the different parts and working of HPLC-10 Marks [**Aug 2022, April 2022**]
- 7.Mention the carrier gases used in gas chromatography and give their merits and limitations.-5 Marks [**Aug 2022**]
7. Frontal analysis.-5 Marks [**Aug 2022**]
8. Explain the factors affecting R_f value in TLC -5 Marks [**Apr 2022**]
9. Any two advantages and limitations each of pneumatic pump, piston pump and syringe pump used in HPLC.-5 Marks [**Dec 2021**]

10. List the applications of gel filtration and affinity chromatography.- 5 Marks **[Dec 2021]**
11. Explain rate theory and plate theory of chromatography with their limitations and applications. 10 Marks **[Aug 2021]**
12. Briefly explain the factors to be considered for selecting a chromatographic technique.-5 Marks**[Aug 2021]**
13. Detection of separated compounds in paper chromatography.-5 Marks**[Aug 2021]**
14. A blood sample suspected to contain organophosphorus poison needs to be analyzed by gas chromatography. Which detector is used for the same and why. Explain its working.-5 Marks**[Aug 2021]**
15. Explain the principle and development techniques, adsorbents, mobile phase and detection methods used in column chromatography.-10 Marks**[Aug 2021]**
16. Layer prewashing of HPTLC plates.-5 Marks**[Aug 2021]**
17. Describe the various development techniques in paper chromatography.-5 Marks**[Feb 2021, Jan 2020]**
18. List the types of silica gel used in TLC with their applications.-5 Marks**[Feb 2021]**
19. Explain deviation from Lambert Beer's law- 10 Marks**[Jan 2020]**
20. Column development techniques in column chromatography- 5 Marks**[Jan 2020]**
21. What is ion exchange chromatography. Explain its principle and factors affecting the same- 5 Marks**[Jan 2020]**
22. What are the types of electrophoresis. Explain.- 5 Marks**[Jan 2020]**
23. Draw, label and explain working of detectors of gas chromatography- 10 Marks**[June 2019]**
24. Give elution methods in column chromatography along with factors affecting the separation efficiency- 5Marks **[June 2019]**
25. Mention pharmaceutical applications of gel filtration and affinity chromatography-5Marks **[June 2019]**
26. Explain the impact of R_f values in detection and quantification of drugs by TLC and paper chromatography-5 Marks **[Jan 2019]**
27. Principles and application of gel and paper electrophoresis-5 Marks **[Jan 2019]**
28. Give ion exchange chromatographic separation method and factors affecting the separation.-5 Marks **[Jan 2019]**
29. Atomic absorption spectroscopy and its applications.-5 Marks **[Jan 2019]**

CHAPTER 3: ELECTROMETRIC METHODS

1. Define Indicator electrodes. Explain about the constructions of glass electrodes-10 Marks[**Aug 2023**]
2. Detail the principle and procedure involved in Karl Fishers Titrations-5 Marks[**Aug 2023**]
3. Write the various titration curves in conductometric titrations.-5 Marks[**Feb 2023**]
4. Explain the construction, working, advantages and disadvantages of dropping mercury electrode. -10 Marks [**Aug 2023**]
5. Explain the different types of conductometric titrations with example and mention its applications- 10 Marks [**Apr 2022**]
6. Why oxygen should be removed from the analyte solution before polarographic analysis. Explain- 5 Marks-5 Marks [**Dec 2021**]
7. Explain potentiometric titrations. What are the methods of detecting end points in the same-5 Marks[**Aug 2021**]
8. Explain the theory and significance of Karl Fischer titration.-5 Marks[**Aug 2021**]
9. List the advantages and disadvantages of amperometry over potentiometry.-5 Marks[**Aug 2021**]
10. How does a hollow cathode lamp work -5 Marks[**Aug 2021**]
11. Explain the construction and functioning of glass electrode. Explain the various methods to determine end point of potentiometric titration -10 Marks[**Aug 2021**]
12. Explain the different types of conductivity cell. -5 Marks[**Feb 2021**]
13. Define – molar conductance, specific conductance, resistance, cell constant and equivalence conductance-5 Marks[**Jan 2020**]
14. Describe ilkovic equation and its application in pharmacy-5 Marks[**June 2019**]
15. Describe the reference electrodes used in potentiometry with their application in potentiometric titrations-10 Marks[**June 2019**]
16. Narrate construction and working of a dropping mercury electrode-5 Marks[**Jan 2019**]

CHAPTER 4: SPECTROSCOPY

1. Derive the Beer –Lamberts Law-5 Marks [**Aug 2023**]
2. Classify the types of vibrations in infrared analysis-5 Marks [**Aug 2023, Apr 2022, Feb 2021**]
3. Theory of Fluorescence and phosphorescence-5 Marks [**Aug 2023**]
4. What is Bragg's law. Explain briefly about powder X-ray diffraction technique- 5 Marks [**Aug 2023**][**Feb 2023**]

5. What are the different types of ions produced in mass analysis-5 Marks [**Aug 2023**] [**Feb 2023**]
6. Write the instrumentation of Differential scanning calorimeter-5 Marks [**Aug 2023**]
7. Explain the principle of IR. Discuss in detail about various vibrational transitions and frequencies in IR spectroscopy in a neat diagram-10 Marks [**Feb 2023**]
8. Explain the theory and instrumentation of flame photometry- 10 Marks [**Feb 2023**]
9. Write down the various types of electronic excitation process-5 Marks [**Feb 2023**]
10. What is luminescence and its various types- 5 Marks [**Feb 2023**]
11. What is Bragg's law. Explain briefly about powder X-ray diffraction technique- 5 Marks [**Feb 2023, Aug 2022**]
12. Explain the different sampling techniques in IR spectroscopy.-10 Marks [**Aug 2022**]
13. Explain the theory of fluorescence with energy level diagram-5 Marks [**Aug 2022**]
14. What are the types of electronic transitions observed when an organic molecule absorbs UV light.-5 Marks [**Aug 2022**]
15. Enumerate the types of ions formed in mass spectroscopy.-5 Marks [**Aug 2022, Apr 2022**]
16. Explain the theory of fluorescence and the factors influencing fluorescence intensity-5 Marks[**Aug 2022**]
17. Draw a neat sketch of a single beam spectrofluorimeter and explain the functions of each unit.- 10 Marks [**Aug 2022**]
18. What are chromophores and auxochromes. Add a note on various shifts of absorption maxima.-5 Marks[**Apr 2022**]
19. Explain the construction and working of flame ionization detector and electron capture detector used in gas chromatography.-5 Marks[**Apr 2022**]
20. Explain the principle and applications of atomic absorption and atomic emission spectrometry.-5 Marks[**Apr 2022**]
21. Explain the working of any one specific (or solute) property detector and one bulk property detector used in HPLC.-10 Marks [**Dec 2021**]
22. How are solid, liquid and gas samples handled in IR spectroscopy. -10 Marks [**Dec 2021**]
23. State Beer - Lambert's law and derive an equation for the same. -5 Marks [**Dec 2021**]
24. Explain premix laminar and total consumption burners -5 Marks [**Dec 2021**]
25. Explain differential scanning calorimetry. Differentiate between heat flux and power compensation DSC -5 Marks [**Dec 2021**]
26. How is UV – visible spectrophotometer calibrated -5 Marks [**Aug 2021**]

27. Explain the working of Golay cell and pyroelectric detector used in IR spectrometer. -5 Marks **[Aug 2021]**
28. Explain briefly the instrumentation of double beam UV-Visible spectrophotometer.-10 Marks **[Feb 2021]**
29. Define quenching. Explain the different types of quenching. -5 Marks **[Feb 2021, Jan 2019]**
30. Optical rotatory dispersion-5 Marks **[Feb 2021]**
31. Define λ_{max} . What are the various shifts observed in λ_{max} -5 Marks **[Jan 2020]**
32. Why fluorometric analysis is more specific than UV spectrometric analysis. Differentiate a fluorimeter and UV spectrophotometer.-5 Marks **[Jan 2020]**
33. What are the various types of peaks observed in a mass spectrum. List their analytical applications-5 Marks **[Jan 2020]**
34. Explain fluorescence process. With suitable examples give estimation of compounds by fluorescence method.-10 Marks **[June 2019]**
35. Describe the theory, interferences, instrumentation and application of flame photometry.-10 Marks **[June 2019]**
36. Various ions produced and applications of mass spectrometry-5 Marks **[June 2019]**
37. Mention the theoretical aspects and applications of NMR-5 Marks **[June 2019]**
38. Instrumentation and sample handling of IR-5 Marks **[June 2019]**
39. Detectors of UV spectroscopy-5 Marks **[June 2019]**
40. Explain various vibrational transition of compounds in IR. Give detectors and application of IR spectroscopy.-10 Marks **[Jan 2019]**
41. Laws employed in UV and their deviation-5 Marks **[Jan 2019]**
42. Diffraction pattern of solids and their detection by X-ray diffraction methods-5 Marks **[Jan 2019]**

PHARMACOTHERAPEUTICS II
(QP CODE: 303326)



UNIT I - INFECTIOUS DISEASES

1. Explain the pharmacotherapy of urinary tract infections (**10 marks**) (**August 2023**).
2. Briefly discuss the guidelines for the rational use of surgical prophylaxis (**5 marks**) (**August 2023**) (**February 2023**) (**June 2019**).
3. Discuss the management of malaria (**5 marks**) (**August 2023**).
4. Discuss the management of gastroenteritis (**5 marks**) (**August 2023**) (**January 2019**).
5. Explain the management of septicemia (**10 marks**) (**February 2023**).
6. Management of uncomplicated malaria for adults and pregnant women (**5 marks**) (**February 2023**).
7. Five opportunistic infections associated with HIV (**5 marks**) (**February 2023**).
8. Describe the pathophysiology, clinical manifestations, and management of Human Immunodeficiency Virus (HIV) (**10 marks**) (**August 2022**).
9. Management of complications of urinary tract infections (**5 marks**) (**August 2022**).
10. Management of Hepatitis B (**5 marks**) (**August 2022**).
11. Management of multi-drug resistant tuberculosis (**5 marks**) (**August 2022**) (**April 2022**) (**February 2021**).
12. Gonorrhoea (**5 marks**) (**August 2022**).
13. Explain the clinical manifestations and management involved in endocarditis (**10 marks**) (**April 2022**).
14. Urinary tract infection (**5 marks**) (**April 2022**).
15. Management of chloroquine resistant malaria (**5 marks**) (**April 2022**).
16. Opportunistic infections (**5 marks**) (**April 2022**).
17. Surgical prophylaxis (**5 marks**) (**December 2021**).
18. Prevention of hepatitis B infection (**5 marks**) (**December 2021**).
19. Explain the types of syphilis (**5 marks**) (**December 2021**).
20. Management involved in septicaemia (**5 marks**) (**December 2021**) (**June 2019**).
21. Types of respiratory infection (**5 marks**) (**December 2021**).
22. Discuss the various regimens in the management of pulmonary tuberculosis (**10 marks**) (**August 2021**).
23. Rational use of antibiotics (**5 marks**) (**August 2021**) (**January 2019**).

24. Management of fungal infections **(5 marks) (August 2021)**.
25. Outline the pathophysiology and pharmacotherapy of HIV infection **(10 marks) (February 2021)**.
26. Therapy for UTI **(5 marks) (February 2021)**.
27. Pharmacotherapy of malaria **(5 marks) (February 2021)**.
28. The etiology and therapy of septicemia **(5 marks) (February 2021)**.
29. Therapy for candida infections **(5 marks) (February 2021)**.
30. Pathogenesis of HIV infection and mechanisms of various drugs which inhibits cell cycle of HIV **(10 marks) (January 2020)**.
31. Discuss the pathogenesis and management of pneumonia **(10 marks) (January 2020)**.
32. Treatment for syphilis **(5 marks) (January 2020)**.
33. Brief about fungal infection management **(5 marks) (January 2020)**.
34. Describe the etiopathogenesis and management of UTI **(10 marks) (June 2019)**.
35. Pathogenesis of malaria **(5 marks) (June 2019)**.
36. Management of meningitis **(5 marks) (June 2019)**.
37. Etiopathogenesis of HIV **(5 marks) (June 2019)**.
38. Describe the management of respiratory tract infections **(10 marks) (January 2019)**.
39. Pharmacotherapy of pulmonary tuberculosis **(5 marks) (January 2019)**.
40. Management of endocarditis **(5 marks) (January 2019)**.
41. Treatment of opportunistic infections **(5 marks) (January 2019)**.
42. Pharmacotherapy of gonorrhoea and syphilis **(5 marks) (January 2019)**.

UNIT II - MUSCULOSKELETAL DISORDERS

1. Explain the etiopathogenesis and pharmacotherapy of osteoarthritis **(10 marks) (August 2023)**.
2. Write a note on spondylitis **(5 marks) (August 2023) (January 2020)**.
3. What are the causes and complications of systemic lupus erythematosus **(5 marks) (August 2023)**.
4. Discuss newer criteria for diagnosis and management of rheumatoid arthritis according to American College of Rheumatology **(10 marks) (February 2023)**.
5. Management of spondylitis **(5 marks) (February 2023)**.
6. Management of systematic lupus erythematosus **(5 marks) (February 2023)**.

7. Management of osteoarthritis **(5 marks) (August 2022)**.
8. Explain the pathophysiology of rheumatoid arthritis and add a note on disease modifying antirheumatic drugs **(10 marks) (April 2022)**.
9. Drugs used in uric acid lowering therapy **(5 marks) (April 2022)**.
10. Brief about systemic lupus erythematosus **(5 marks) (December 2021)**.
11. Explain the etiopathogenesis of gout **(5 marks) (December 2021)**.
12. Drug therapy for rheumatoid arthritis **(5 marks) (August 2021)**.
13. Management of gout **(5 marks) (August 2021) (January 2019)**.
14. Discuss the pharmacotherapy of rheumatoid arthritis and its complications **(10 marks) (February 2021)**.
15. Describe the pathophysiology and pharmacotherapy of osteoarthritis **(10 marks) (January 2020)**.
16. Explain the pathology and pharmacotherapy of rheumatoid arthritis **(10 marks) (June 2019)**.
17. Pharmacotherapy of osteoarthritis **(5 marks) (June 2019)**.

UNIT III - RENAL SYSTEM

1. Write a note on hemodialysis and peritoneal dialysis **(5 marks) (August 2023)**.
2. Hypertension management for chronic kidney disease patients **(5 marks) (February 2023)**.
3. Explain the clinical sign & symptoms, complications, and management of acute renal failure **(10 marks) (August 2022)**.
4. Renal dialysis **(5 marks) (August 2022)**.
5. Compare and contrast the hemodialysis and peritoneal dialysis **(10 marks) (April 2022)**.
6. Discuss the patterns of drug induced renal disease **(5 marks) (April 2022)**.
7. Describe the pathophysiology, clinical manifestations, and pharmacotherapy of chronic renal failure **(10 marks) (December 2021)**.
8. Describe various drug induced renal disorders with suitable examples **(10 marks) (August 2021)**.
9. Hemodialysis in renal failure **(5 marks) (August 2021)**.
10. Management of acute renal failure **(5 marks) (August 2021) (February 2021)**.
11. Drug induced renal disorders and its management **(5 marks) (February 2021)**.
12. Write the types of acute renal failure **(5 marks) (January 2020)**.

13. Write the mechanism of non-steroidal anti-inflammatory drug induced renal diseases (**5 marks**) (**January 2020**).
14. Discuss the various phases and management of acute renal failure (**10 marks**) (**January 2019**).

UNIT IV - ONCOLOGY

1. Briefly discuss the basic principles of cancer therapy (**5 marks**) (**August 2023**) (**August 2021**).
2. Write a note on chemotherapy of leukemia (**5 marks**) (**August 2023**).
3. Explain the six types of general treatment for cancer with examples (**10 marks**) (**February 2023**).
4. Risk factors for leukemia (**5 marks**) (**February 2023**).
5. Explain the basic principles of cancer therapy (**10 marks**) (**August 2022**) (**June 2019**).
6. Detail of invasion and metastasis in cancer (**5 marks**) (**April 2022**).
7. Explain the stages and management of breast cancer (**10 marks**) (**December 2021**).
8. Explain the etiopathogenesis and chemotherapy of breast cancer (**10 marks**) (**August 2021**).
9. Explain the pathophysiology and pharmacotherapy of leukemia (**10 marks**) (**February 2021**) (**January 2019**).
10. Notes on oncogenes and protooncogenes (**5 marks**) (**January 2020**).
11. Pharmacotherapy involved in Leukemia (**5 marks**) (**January 2020**).
12. Management of chemotherapy induced nausea and emesis (**5 marks**) (**June 2019**).

UNIT V - DERMATOLOGY

1. Explain the etiopathogenesis and pharmacotherapy of psoriasis (**10 marks**) (**August 2023**).
2. Differentiate eczema and psoriasis (**5 marks**) (**February 2023**).
3. Management of eczema (**5 marks**) (**August 2022**).
4. Impetigo (**5 marks**) (**August 2022**).
5. Explain the aetiology and types of psoriasis (**5 marks**) (**April 2022**).
6. Discuss in detail about pharmacotherapy of psoriasis (**10 marks**) (**December 2021**).
7. Discuss about bullous impetigo (**5 marks**) (**December 2021**).
8. List down the types and discuss the therapy for psoriasis (**5 marks**) (**August 2021**).
9. Pharmacotherapy of eczema (**5 marks**) (**February 2021**).

10. Topical agents in the management of psoriasis (**5 marks**) (**January 2020**).
11. Etiology and management of scabies (**5 marks**) (**June 2019**).
12. Types and management of eczema (**5 marks**) (**January 2019**).



PHARMACEUTICAL JURISPRUDENCE
(QP CODE: 304326)



UNIT I - PHARMACEUTICAL LEGISLATIONS

1. Pharmaceutical legislations. 5Marks **[JANUARY 2019]**
2. Discuss various roles of a pharmacist as a health care team member. 5Marks
[JANUARY 2019]
3. Salient features of pharmaceutical policy. 5Marks **[AUGUST 2021]**
4. Salient features of pharmaceutical policy. 5Marks **[DECEMBER 2021]**

UNIT II - CODE OF ETHICS

1. Elaborate on the code of ethics for a pharmacist as drafted by PCI. 10Marks **[JUNE 2019]**
2. Describe the code of ethics in relation to Pharma profession and trade. 5Marks **[JANUARY 2020]**
3. Explain the code of pharmaceutical ethics. 5Marks **[DECEMBER 2021]**
4. As per the Code of Pharmaceutical Ethics framed by the PCI outline the ethical practices expected of a pharmacist in relation to his profession and to the medical profession. 5Marks **[FEBRUARY 2023]**

UNIT III - DRUGS AND COSMETICS ACT 1940

1. Explain the qualifications and duties of drugs inspector as per drugs and cosmetics Act. 10Marks **[JANUARY 2019]**
2. Explain the constitution and functions of drugs technical advisory board. 10Marks
[APRIL 2022]
3. Explain the constitution and functions of central drugs laboratory. 10Marks
[AUGUST 2022]
4. Explain the principles of good manufacturing practices under D & C Act. 10Marks
[JANUARY 2020]

5. Explain the constitution and functions of Drugs Technical Advisory Board. 10Marks [**JUNE 2019**]
6. What are all the cautionary label requirements for schedule G drugs as per drugs and cosmetics Act. 5Marks [**JANUARY 2019**]
7. Mention the special requirements for manufacture of schedule X drugs. 5Marks [**JANUARY 2020**]
8. Qualifications and functions of a government analyst. 5Marks [**JANUARY 2020**]
9. Draw a neat label of schedule H drug. 5Marks [**JUNE 2019**]
10. Qualifications and functions of drugs inspector. 5Marks [**JUNE 2019**]
11. Functions of drugs consultative committee. 5Marks [**JUNE 2019**]
12. Explain the labeling requirements for schedule G drugs. 5Marks [**AUGUST 2021**]
13. Approved colours used in drugs and cosmetics. 5Marks [**AUGUST 2021**]
14. Provisions related to sale of drugs in India. 5Marks [**AUGUST 2021**]
15. Loan license. 5Marks [**DECEMBER 2021**]
16. Functions of drug consultative committee. 5Marks [**DECEMBER 2021**]
17. Explain schedule Y. 5Marks [**DECEMBER 2021**]
18. Mention the special requirements for manufacture of Schedule H drugs. 5Marks [**APRIL 2022**]
19. Draw a neat label for Schedule G drug. 5Marks [**APRIL 2022**]
20. Members and duties of drugs technical advisory board (DTAB). 5Marks [**FEBRUARY 2021**]
21. Qualifications and duties of drugs inspector. 5Marks [**FEBRUARY 2021**]
22. Labeling and packaging guidelines as per Drugs and Cosmetics Act. 5Marks [**FEBRUARY 2021**]

23. Functions of a drugs inspector. 5Marks [**APRIL 2022**]
24. What are the functions of drugs consultative committee. 5Marks [**AUGUST 2022**]
25. Explain the features of Schedule N. 5Marks [**AUGUST 2022**]
26. Draw a neat label of schedule X drug. 5Marks [**AUGUST 2022**]
27. What is 'GMP' and 'cGMP'. Elaborate on the provisions of Schedule M under the Drugs and Cosmetics Act. 10Marks [**FEBRUARY 2023**]
28. Explain the requirements of Schedule N. 5Marks [**FEBRUARY 2023**]
29. Draw a neat label for a Schedule H drug. 5Marks [**FEBRUARY 2023**]

UNIT IV - PHARMACY ACT 1948

1. Members and functions of state pharmacy council. 5Marks [**JANUARY 2019**]
2. Explain the procedure for registration of pharmacist in State Pharmacy Council. 5Marks [**AUGUST 2021**]
3. Explain the constitution and functions of Pharmacy Council of India. 10Marks [**AUGUST 2021**]
4. Explain the objectives of Pharmacy Act and constitutions & functions of pharmacy council of India. 10Marks [**FEBRUARY 2021**]
5. Explain the constitution and functions of the State Pharmacy Council. 10Marks [**FEBRUARY 2023**]
6. Discuss the role and responsibilities of Pharmacy Council of India. 10Marks [**AUGUST 2022**]
7. Enlist the objectives of Pharmacy Act. 5Marks [**AUGUST 2022**]
8. Constitution of state pharmacy council. 5Marks [**JUNE 2019**]
9. Differentiate state pharmacy council and joint state pharmacy council. 5Marks [**AUGUST 2022**]

UNIT V - MEDICINAL AND TOILET PREPARATIONS ACT 1955

1. Describe the preparation of products containing alcohol in a bonded laboratory. 10Marks [**JUNE 2019**]

2. Explain the differences between bonded and non- bonded laboratory with a neat diagram. 10Marks [**APRIL 2022**]
3. Explain in detail about the requirements and manufacture of alcoholic preparations in bonded laboratory. 10Marks [**FEBRUARY 2021**]
4. Warehousing of alcoholic preparations. 5Marks [**JANUARY 2019**]
5. Differentiate between bonded and non- bonded laboratory. 5Marks [**JANUARY 2020**]
6. Discuss the provisions for manufacture of ayurvedic preparations. 5Marks [**DECEMBER 2021**]
7. Bonded and Non-bonded laboratory. 5Marks [**DECEMBER 2021**]
8. Write a note on manufacturing outside bond. 5Marks [**FEBRUARY 2023**]

UNIT VI - NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES ACT 1985

1. Discuss briefly the salient features of the Narcotic and Psychotropic Substances Act. 10Marks [**FEBRUARY 2023**]
2. Discuss in detail about the narcotic drugs and psychotropic substances Act and its rules. 10Marks [**JANUARY 2019**]
3. Discuss the procedure involved in the cultivation, production and sale of opium. 10Marks [**JANUARY 2020**]
4. Discuss the powers of Central Government to permit, control and regulate narcotic drugs and psychotropic substances. 10Marks [**DECEMBER 2021**]
5. Discuss on loan license and repacking license. 10Marks [**AUGUST 2021**]
6. Explain the qualifications and functions of government analyst. 10Marks [**DECEMBER 2021**]
7. Discuss the procedure involved in the cultivation, production and sale of opium. 10Marks [**APRIL 2022**]

8. Offences and penalties under NDPS Act. 5Marks [AUGUST 2021]
9. Provisions related to manufacturing of homeopathic medicines. 5Marks [AUGUST 2021]
10. Provisions related to import of drugs into India. 5Marks [JUNE 2019]
11. Various penalties and offences in relation to Narcotic Drugs and Psychotropic Substances Act. 5Marks [FEBRUARY 2021]

UNIT VII - DRUGS AND MAGIC REMEDIES ACT

1. Explain in detail about drugs and magic remedies Act and rules. 10Marks [JANUARY 2019]
2. What are prohibited advertisements. 5Marks [JANUARY 2020]
3. What are exempted advertisements. 5Marks [JUNE 2019]
4. What are prohibited advertisements. 5Marks [APRIL 2022]
5. Offences and penalties under drugs and magic remedies act. 5Marks [AUGUST 2022]
6. Define 'Magic Remedy'. Write a note on prohibited advertisements under the Drugs and Magic Remedies Act. 5Marks [FEBRUARY 2023]
7. Explain on classes of prohibited and exempted advertisements as per Drugs and Magic Remedies Act. 5Marks [FEBRUARY 2021]

UNIT VIII - ESSENTIAL COMMODITIES ACT

1. Current national drug policy. 5Marks [JANUARY 2019]
2. What are the salient features of National Drug Policy. 5Marks [JANUARY 2020]
3. What are the functions of Essential Commodities Act. 5Marks [JUNE 2019]
4. Differentiate essential and non-essential commodities. 5Marks [AUGUST 2021]
5. Enlist the functions of Essential Commodities Act. 5Marks [DECEMBER 2021]

UNIT IX - DRUG PRICE CONTROL ORDER

1. DPCO 5Marks [JANUARY 2020]
2. Explain the formula for calculating the retail price of the formulation as per DPCO. 5Marks [APRIL 2022]
3. Purpose of controlling prices of drugs. What is the formula used for calculating retail price of a formulation as per drugs price control order. 5Marks [FEBRUARY 2021]
4. What is the Third Schedule under the Drugs Price Control Order. How is the retail price of drug formulations fixed by the Government. 5Marks [FEBRUARY 2023]

UNIT X - PREVENTION OF CRUELTY TO ANIMALS ACT 1960

1. Describe the salient features of Prevention of Cruelty to Animals Act. 10Marks [AUGUST 2022]
2. Explain the constitution and functions of CPCSEA. 10Marks [JANUARY 2020]
3. Describe in detail about prevention of cruelty to animals Act. 10Marks [FEBRUARY 2021]
4. What are the duties of the Committee for Control and Supervision of Experiments on Animals with respect to experimentation on animals. 5Marks [FEBRUARY 2023]
5. Give an account on experimentation of animals under prevention of cruelty to animals Act. 5Marks [JANUARY 2019]

UNIT XI - PATENTS & DESIGNS ACT 1970

1. Explain in detail the non-patentable inventions. 10Marks [AUGUST 2021]
2. Describe the following: • Patents • Copyrights. 10Marks [DECEMBER 2021]
3. Intellectual property rights. 5Marks [APRIL 2022]
4. Patent and its significance. 5Marks [JANUARY 2019]
5. Discuss briefly about Patents Act. 5Marks [FEBRUARY 2021]
6. What are the salient features of Designs Act. 5Marks [APRIL 2022]

7. Non-patentable inventions. 5Marks [AUGUST 2022]

8. What are the different patents granted under the Indian Patent Act. Explain the procedure involved in the grant of a patent. 5Marks [FEBRUARY 2023]

UNIT XII - PRESCRIPTION AND NON-PRESCRIPTION PRODUCTS

1. Prescription drugs. 5Marks [JANUARY 2020]

2. Non-prescription products. 5Marks [JUNE 2019]

3. Prescription products. 5Marks [FEBRUARY 2021]

4. Non-prescription drugs. 5Marks [APRIL 2022]

5. Prescription products. 5Marks [AUGUST 2022]





MEDICINAL CHEMISTRY
(QP CODE: 305326)

UNIT I - MODERN CONCEPTS OF DRUG DESIGN

1. Write a note in QSAR and its parameters. **(10 marks)** [Aug 2023]
2. Concept and applications of combinatorial chemistry. **(10 marks)**[Feb 2023]
3. Various approaches used in drug design. **(10 marks)**[Aug 2022]
4. Physicochemical parameters used in quantitative structure. **(10 marks)**[April 2022]
5. Write a note on molecular graphics. **(5 marks)**[Dec 2021]
6. Solid phase synthesis. **(5 marks)**[Feb 2021]
7. Hansch analysis. **(5 marks)**[Jan 2020]
8. Antisense therapeutic agents. **(5 marks)**[July 2018]
9. Solution phase synthesis. **(5 marks)**[July 2018]

UNIT II - ANTI-INFECTIVE AGENTS

1. Write down the SAR and Classification of Anti-tubercular agents. **(10marks)**[Aug 2023]
2. Write in detail on synthetic antitubercular agents. Enumerate the synthesis of INH. **(10marks)** [Aug 2023]
3. SAR and classification of quinolones. **(10marks)**[Feb 2023]
4. Define and classify antiviral agents. Write in detail on purine nucleoside analogues. **(10marks)**[Aug 2022]
5. Define and classify antiviral agents. Write in detail on Reverse Transcriptase Inhibitors. **(10marks)**[Aug 2022]
6. Define and classify antifungal agents. Write in detail on synthetic antifungal agents. **(10marks)**[April 2022]
7. Write down the chemistry and classification of antifungal antibiotics. Enumerate the synthesis of Albendazole. **(10marks)**[April 2022]
8. Define and classify anti-protozoal agents. Enumerate the synthesis of metronidazole. **(10marks)**[Dec 2021]
9. Define and classify anthelmintics. Write in detail on piperazines and Benzimidazole derivatives. **(10marks)**[Dec 2021]
10. Classification, chemistry and SAR of sulfonamides. **(10marks)**[Feb 2021]

11. Define sulphonamides and explain its mechanism of action. Write in detail on sulphonamids for local infections. Enumerate the synthesis of sulfacetamide. **(10marks)[Feb 2021]**
12. Write down the stereochemistry, classification and chemical degradation of penicillins. **(10marks)[Jan 2020]**
13. Write down the SAR of penicillins. Write in detail on chemistry of beta lactam antibiotics. **(10marks)[Jan 2020]**
14. Write down the classification and chemistry of tetracyclines. **(10marks)[June 2019]**
15. Write down the mode of action, chemistry, classification and SAR of cephalosporins. **(10marks)[June 2019]**
16. Write in detail on Alkalyating agents. **(10marks)[Jan 2019]**
17. Classification of antineoplastic agents with examples. **(10marks)[July 2018]**
18. Write in detail on classification and SAR of quinolines. **(10marks) [July 2018]**
19. Steps in Viral life cycle. **(05 marks) [Aug 2023]**
20. Synthesis of nitrofurantoin. **(05 marks) [Aug 2023]**
21. Antitubercular antibiotics. **(05 marks) [Aug 2023]**
22. Synthesis, Mechanism and uses of p-amino salicylic acid. **(05 marks) [Aug 2023]**
23. Synthesis and uses of Acyclovir. **(05 marks) [Aug 2023]**
24. HIV -Protease inhibitors. **(05 marks) [Feb 2023]**
25. Synthesis of ciprofloxacin. **(05 marks) [Feb 2023]**
26. Write down the chemistry of polyene antibiotics. **(05 marks) [Feb 2023]**
27. Write a note on aminoglycoside antibiotics. **(05 marks) [Feb 2023]**
28. Chemical degradation of penicillins. **(05 marks) [Feb 2023]**
29. Write down the SAR of penicillins. **(05 marks) [Feb 2023]**
30. Structure and uses of any four tetracyclines. **(05 marks) [Aug 2022]**
31. Structure and uses of any four semi-synthetic penicillins. **(05 marks) [April 2022]**

32. Write the chemistry of nitrogen mustard. **(05 marks)** [April 2022]
33. Structure, synthesis and uses of chloramphenicol. **(05 marks)** [April 2022]
34. Etiology of malaria. **(05 marks)** [April 2022]
35. Synthesis and uses of Chloroquine. **(05 marks)** [Aug 2022]
36. 8-amino quinolones. **(05 marks)** [Aug 2022]
37. Synthesis of pamaquine. **(05 marks)** [April 2022]
38. Structure and uses of 4-amino quinolones. **(05 marks)**[April2022]
39. Structure and uses of pyrimethamine. **(05 marks)**[April2022]
40. Antifungal antibiotics. **(05 marks)** [April 2022]
41. Synthesis and use of Albendazole. **(05 marks)** [April 2022]
42. Structure, synthesis and uses of tolnaftate. **(05 marks)** [Dec 2021]
43. Write a note on synthetic antifungal agents. **(05 marks)** [Dec 2021]
44. Define and classify antifungal agents. **(05 marks)** [Dec 2021]
45. Synthesis and uses of metronidazole. **(05 marks)** [Feb 2021]
46. Write down the mechanism of action and synthesis of Metronidazole. **(05 marks)** Feb 2021]
47. Classify antiprotozoal agents with its structures. **(05 marks)** [Feb 2021]
48. Benzimidazole anthelmintics. Enumerate the synthesis of mebendazole. **(05 marks)** [Jan 2020]
49. Structure, synthesis and uses of DEC citrate. **(05 marks)** [Jan 2020]
50. Structure and uses of any 3 anthelmintic agents. **(05 marks)** [Jan2020]
51. Chemistry of sulphonamides. **(05 marks)** [Jan 2020]
52. Structure, synthesis and uses of sulphamethoxazole. **(05 marks)** [June 2019]
53. Folate reductase inhibitors. **(05 marks)** [June 2019]
54. Synthesis of Trimethoprim. **(05 marks)**[Jan 2019]
55. Write a note on Sulphones. **(05 marks)**[Jan 2019]

56. Synthesis and uses of Dapsone. (05 marks) [Jan 2019]

57. SAR of sulphonamides. (05 marks) [July 2018]

58. Synthesis of sulphacetamide. (05 marks) [July 2018]

UNIT III - CARDIOVASCULAR AGENTS

1. Classify antihypertensive agents with examples .outline the synthesis of methyl dopa. (10 marks) [Aug 2023]

2. Enumerate on Antiarrhythmic drugs. (10 marks) [Feb 2023]

3. Add a note on CCB and vasodilators. (10 marks) [Aug 2022]

4. Outline the synthesis of amlodipine. (05 marks) [April 2022]

5. Chemistry of 1,4 dihydropyridines. (05 marks) [Dec 2021]

6. Coagulants and anticoagulants. (05 marks) [Feb 2021]

7. Outline the synthesis of warfarin. (05 marks) [Jan 2020]

8. Antianginal drugs. (05 marks) [June 2020]

9. Antihyperlipidemic agents. (05 marks)[Jan 2019]

10. Endocrine drugs. (05 marks)[July 2018]

UNIT IV - OTHER AGENTS

1. Chemistry and MOA of sulphonylureas. Outline the synthesis of tolbutamide. (10 marks) [Aug 2023]

2. Classify diuretics with suitable examples. Outline the synthesis of furosemide (10 marks)[Feb 2023]

3. Chemistry of androgens and oestrogens. (10 marks)[Aug 2022]

4. Enumerate on diagnostic aids. (10 marks)[April 2022]

5. Classify oral hypoglycemic agents. Add a note on various insulin preparations. (10 marks)[Dec 2021]

6. Ennumerate on Tyroid and Antityroid drugs. Outline the synthesis of carbimazole. **(10marks) [Dec 2021]**
7. Chemistry of biguanides. **(05 marks)[Jan 2020]**
8. SAR of Tyroid drugs. **(05 marks)[Jan 2020]**
9. Synthesis of metformin. **(05 marks)[June 2019]**
10. Add a note on sulphonyl ureas. **(05marks)[Jan 2019]**
11. Enumerate on thiasolidinediones. **(05marks)[Jan 2019]**
12. Explain on diagnostic aids. **(05marks)[Jan 2019]**
13. Oral contraceptives. **(05marks)[July 2019]**
14. Synthesis of progesterone. **(05marks) [July 2019]**
15. High ceiling diuretics. **(05marks) [July 2019]**
16. Synthesis of triamterene. **(05marks) [July 2019]**
17. Chemistry of thiazide diuretics. **(05marks)[July 2018]**
18. MOA of CA Inhibitors. **(05 marks) [July 2018]**

PHARMACEUTICAL FORMULATIONS
(QPCODE: 306326)



UNIT I - PREFOMULATION

1. Classification of pharmaceutical dosage forms.5 marks (**June 2019**)
2. Classification of dosage forms based on route of administration.5 marks (**April 2022**)
3. Classify pharmaceutical dosage forms.5 marks (**Feb 2021**)

Unit II - Tablets dosage forms

1. Discuss the steps involved in sugar coating of tablets. 5 marks (**June 2019**)
2. Quality control test for enteric coated tablets.5 marks (**June 2019**)
3. Define tablets. Give a detailed account on different excipients used in tablets preparation. 10 marks (**June 2019**)
4. Discuss the different coating techniques for tablets.5 marks (**Jan 2020**)
5. Discuss dry granulation technique of tablets and list out its advantages and disadvantages. 10 marks (**Jan 2020**)
6. Classify different granulation techniques in tablets. Discuss the wet granulation method.10 marks (**Feb 2021**)
7. Film coating of tablets.5 marks (**Feb 2021**)
8. Explain various granulation techniques in detail.10 marks (**April 2022**)
9. Explain the different granulation techniques. Discuss the official quality control studies of tablets. 10 marks (**Feb 2023**).
10. What are the different types of processing problem encountered in manufacturing of tablets and how they can be overcome. 5 marks (**Feb 2023**)

UNIT III - CAPSULE DOSAGE FORMS

1. Discuss the steps involved in preparation of empty hard gelatin capsules.5 marks (**June 2019**)

. Explain the working of rotary die machine for manufacturing of soft gelatin capsules.5 marks
(Jan 2020)

3. Discuss any two quality control tests for hard gelatin capsules.5 marks **(Jan 2020)**

4. Filling of hard gelatin capsules.5 marks **(Feb 2021)**

5. Quality control test for hard gelatin capsules.5 marks **(April 2022)**

6. Explain the importance of base absorption and minimum gram factor in soft gelatin capsules.
10 marks **(Feb 2023).**

7. Rotary die process in the manufacture of gelatin capsule.5 marks **(Feb 2023)**

UNIT IV - PARENTERALS

1. Distinguish between small volume and large volume parenterals. Explain any two quality control tests conducted on parenterals 10 marks **(June 2019)**

2. Pyrogen test for parenteral preparations.5 marks **(Jan 2020)**

3. Glass containers used for parenterals.5 marks **(Jan 2020)**

4. Define Parenterals. What are the different additives used in the manufacture of parenterals giving their functions and examples.10 marks **(Jan 2020)**

5. Describe in detail the production facilities required to be maintained for parenterals.10 marks
(Feb 2021)

6. Vehicles used in parenterals.5 marks **(Feb 2021)**

7. Closures.5 marks **(April 2022)**

8. Explain sterility test for parenterals.5 marks **(Feb 2021)**

9. Discuss the evaluation tests on parenterals.10 marks **(April 2022)**

10. Describe briefly the production of parenterals and add a note on lyophilization technique.
10 marks **(Feb 2023).**

11. LAL test for pyrogens and its significance. 5 marks **(Feb 2023)**

Unit V - Liquid preparation

1. Discuss the evaluation test for suspensions.5 marks (**Feb 2021**)
2. Stability problems of emulsions.5 marks (**April 2022**)
3. Identification test for emulsions.5 marks (**April 2022**)
4. Write on the role of structured vehicle in the preparation of pharmaceutical suspension. 5 marks (**Feb 2023**)
5. Formulation of Jellies. 5 marks (**Feb 2023**)

Unit VI - Semi solid dosage forms (Ophthalmic preparations)

1. Explain the factors affecting absorption through skin. 5 marks (**June 2019**)
2. Formulation of suppositories.5 marks (**June 2019**)
3. Classify ointment bases with examples. Describe in brief about water miscible base.10 marks (**Jan 2020**)
4. Explain the requirements for the ophthalmic preparations.5 marks (**Jan 2020**)
5. Formulation of jellies.5 marks (**Jan 2020**)
6. Classify ointment bases with examples.5 marks (**Feb 2021**)
6. Explain the factors affecting absorption of semisolid dosage forms. 10 marks (**April 2022**)
7. Methods of preparation of suppositories.5 marks (**April 2022**)

Unit VI - Controlled Drug Delivery system

1. Implants.5 marks (**June 2019**)
2. The advantages and disadvantages of transdermal drug delivery systems.5 marks (**June 2019**)
3. Explain the concept of controlled and novel drug delivery systems.10 marks (**June 2019**)
4. Nasal drug delivery systems.5 marks (**Jan 2020**)

- . Explain in detail concepts of novel drug delivery systems.10marks **(Feb 2021)**
6. Buccal drug delivery systems.5 marks **(Feb 2021)**
7. Implants.5 marks **(April 2022)**
8. Ocular drug delivery system.5 marks **(April 2022)**
9. Explain the different barriers for ocular absorption of drug. 5 marks **(Feb 2023)**
10. Explain briefly about evaluation of transdermal drug delivery system. 5 marks **(Feb 2023)**
11. Explain the concept and advantages of novel drug delivery system.5 marks **(Feb 2023)**



PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



FOURTH YEAR PHARM D
QUESTION BANK

PHARMACOTHERAPEUTICS – III
(Q.P. CODE: 401326)



UNIT-I: GASTROINTESTINAL SYSTEM

1. Inflammatory bowel disease **(05 marks) (June 2023)**.
2. Management of viral hepatitis **(05 marks) (June 2023)**.
3. Describe the pathophysiology, clinical presentations and management of peptic ulcer disease **(10 marks) (January 2023)**.
4. Describe the pathophysiology and pharmacotherapy of peptic ulcer disease **(10 marks) (July 2022)**.
5. Discuss the pathogenesis and treatment of alcoholic liver disease **(05 marks) (July 2022)**.
6. Explain the therapeutic management of gastro esophageal reflux diseases **(05 marks) (March 2022)**.
7. Elaborate on the drug induced liver disorders and the appropriate management **(10 marks) (March 2022)**.
8. H. pylori eradication regimen **(05 marks) (January 2021), (December 2019)**.
9. Gastro esophageal reflux disease **(05 marks) (January 2021)**.
10. Explain etio-pathogenesis, clinical manifestations and management of inflammatory bowel disease **(10 marks) (January 2021)**.
11. Write about the types of inflammatory bowel disease and its management **(10 marks) (December 2019)**.
12. Discuss about etiopathogenesis, various types and pharmacotherapy of viral hepatitis **(10 marks) (July 2019)**.
13. Explain the pathogenesis of alcoholic liver disease **(05 marks) (July 2019)**.
14. Elaborate on the drug induced liver disorders and its management **(10 marks) (December 2018)**.
15. Explain the pathophysiology and pharmacological management of inflammatory boweldisease **(10 marks) (December 2018)**.
16. Drugs for esophageal reflux disease **(05 marks) (December 2018)**.
17. Types of viral hepatitis **(05 marks) (December 2018)**.
18. Explain the etiopathogenesis of peptic ulcer disease. Add a note on anti H.pylori therapy **(10 marks) (July 2018)**.
19. Explain the role of corticosteroids in inflammatory bowel disease **(05 marks) (July 2018)**.

20. Explain clinical manifestation and management of gastric and duodenal ulcers
(10 marks) (January 2018).

21. Liver cirrhosis **(05 marks) (January 2018).**

22. Viral hepatitis **(05 marks) (January 2018).**

UNIT-II: HAEMATOLOGICAL SYSTEM

1. Management of venous thromboembolism **(05 marks) (June 2023).**
2. Discuss the etiology of various types of anemia and treatment of megaloblastic anemia **(10 marks) (July 2022).**
3. Elaborate on the pathogenesis, clinical features and management of megaloblastic anemia **(10 marks) (July 2022).**
4. Explain the risk factors for venous thromboembolism **(05 marks) (July 2022).**
5. Megaloblastic Anemia **(05 marks) (January 2021)**
6. Describe various types of drug induced blood disorders with drugs implicated for each condition **(A10 marks) (January 2021).**
7. Describe the aetiology and treatment of venous thromboembolism **(10 marks) (December 2019).**
8. Explain about various types of anemia and add notes on management of vitamin B12 deficiency anemia **(10 marks) (December 2019).**
9. Explain the treatment for Megaloblastic Anemia **(05 marks) (July 2019).**
10. Describe the pathophysiology, clinical presentations and management of iron deficiency anemia **(10 marks) (July 2018).**
11. Describe various types of anemia based on RBC morphology and their management **(10 marks) (January 2018).**
12. Describe various types of drug induced blood disorders with drugs implicated for each condition **(10 marks) (January 2018).**
13. Venous thromboembolism **(05 marks) (January 2018).**

UNIT-III: NERVOUS SYSTEM

1. Describe the pathophysiology and pharmacotherapy of epilepsy **(10 marks) (June 2023).**
2. Explain about the generalized seizure, clinical symptoms and its management **(10 marks) (January 2023).**
3. Tissue plasminogen activator in ischemic stroke **(05 marks) (January 2023).**

4. Classify seizures, their characteristics and drugs employed in management **(10 marks) (July 2022).**
5. Explain the prevention and management strategies followed in stroke **(05 marks) (July 2022).**
6. Explain the pharmacotherapy of ischemic stroke **(05 marks) (March 2022).**
7. The pharmacotherapy of generalized tonic-clonic seizure **(05 marks) (March 2022).**
8. Explain the treatment options for the management of ischemic stroke **(05 marks) (November 2021).**
9. Specify the drugs used for the treatment of Alzheimer's disease **(05 marks) (July 2021).**
10. Explain the clinical presentation of various types of seizures with their management **(10 marks) (January 2021).**
11. Ischemic stroke **(05 marks) (January 2021).**
12. Describe the management of hemorrhagic stroke **(05 marks) (December 2019).**
13. Pathogenesis and clinical management of Alzheimer's disease **(05 marks) (December 2019).**
14. Describe the pathophysiology, clinical manifestations and pharmacotherapy of Parkinsonism **(10 marks) (July 2019).**
15. Pathogenesis of Alzheimer's disease **(05 marks) (December 2018).**
16. Explain the role of anticholinesterases in Alzheimer's disease **(05 marks) (July 2018).**
17. Classify seizures. Discuss the salient pharmacological aspects of commonly used antiepileptics **(10 marks) (July 2018).**
18. Give an account on the role of fibrinolytics in stroke **(05 marks) (July 2018).**
19. Complex partial seizures **(05 marks) (January 2018).**

UNIT-IV: PSYCHIATRY DISORDERS

1. Types of schizophrenia **(05 marks) (January 2023), (July 2022), (June 2016).**
2. Pharmacotherapy of obsessive-compulsive disorders **(05 marks) (June 2023), (December 2018),.**
3. Extrapyramidal side effects induced by antipsychotic drugs **(05 marks) (January 2023).**
4. Mention the drugs used for anxiety disorders **(05 marks) (July 2022).**
5. Explain the adverse effects of antipsychotics and its management **(05 marks) (March 2022).**
6. Discuss atypical anti-psychotic drugs with suitable examples **(05 marks) (Nov 2021)**

7. Explain the types and management of sleep disorders **(05 marks) (November 2021)**.
8. Mention the treatment strategies for obsessive compulsive disorder **(05 marks) (July 2021)**.
9. Explain schizophrenia and explain in detail about its management **(10 marks) (July 2021)**.
10. Affective disorders **(05 marks) (January 2021)**.
11. Atypical antipsychotic drugs **(05 marks) (July 2019)**.
12. Describe the etiopathogenesis, clinical presentations and pharmacotherapy of schizophrenia **(10 marks) (December 2018)**.
13. Describe the pathophysiology of schizophrenia **(05 marks) (July 2018)**.
14. Drugs for anxiety disorders **(05 marks) (July 2019)**.
15. Explain diagnostic criteria for schizophrenia and its management **(10 marks) (January 2018)**.
16. Describe the management of anxiety disorders **(05 marks) (July 2018)**.
17. Management of sleep disorders **(05 marks) (December 2018), (July 2018)**.

UNIT-V: PAIN MANAGEMENT

1. Explain the management of headaches **(05 marks) (June 2023)**.
2. Headaches **(05 marks) (January 2023), (January 2018)**
3. Pain management **(05 marks) (January 2023), (January 2021)**
4. Explain about the types of pain **(05 marks) (July 2022), (July 2019)**.
5. Outline the pain pathways with the pharmacological management for acute and chronic pain **(10 marks) (November 2021)**.
6. Explain the pathophysiology of migraine headache and acute migraine therapies **(10 marks) (July 2021), (July 2019)**.
7. Explain pain pathways **(05 marks) (July 2021), (December 2019)**.
8. Types of neuralgia and management of trigeminal neuralgia **(05 marks) (July 2021)**.
9. Explain the aetiology and types of neuralgias **(05 marks) (December 2019)**
10. Elaborate on the management of migraine headache **(05 marks) (December 2018)**

UNIT-VI: EVIDENCE BASED MEDICINE

1. Role of pharmacist in evidence-based medicine **(05 marks) (January 2023)**.
2. Describe evidence-based medicine with an example **(05 marks) (July 2022)**.
3. Importance of evidence-based medicine in pharmacotherapeutics **(05 marks) (March 2022)**.

4. Levels of evidence in practice **(05 marks) (January 2021)**.
5. Explain the steps of designing evidence-based guidelines **(05 marks) (November 2021), (July 2019)**.
6. Discuss the PICO in question formation for evidence-based medicine **(05 marks) (December 2019)**.
7. Important aspects of evidence-based medicine **(05 marks) (December 2018)**.





HOSPITAL PHARMACY

(QP code: 402326)

CHAPTER 1 – HOSPITAL –ITS ORGANISATION AND FUNCTIONS

1. Define Hospital and its organization. Explain the various services rendered by Hospital. – 10 Marks [**March 2022**]
2. Define and classify hospitals. Explain pharmacy and therapeutic committee and its role in hospital formulary management. - 10 Marks [**November 2021**]
3. Define hospital. Explain the organization, various departments and functions of hospital. – 10 Marks [**July 2019**]
4. Classify various types of hospitals with examples. - 5 marks [**December 2019**]

CHAPTER 2 – HOSPITAL PHARMACY- ORGANISATION & MANAGEMENT

1. Explain briefly about hospital pharmacy structure, organization and management. - 10 marks [**June 2023**]
2. Management of materials and finance in hospital pharmacy. - 5 marks [**January 2023**]
3. Discuss the purchase procedures in hospital pharmacy. – 5 Marks [**March 2022**]
4. Define hospital pharmacy. Explain the organizational structure and role of hospital pharmacist with other departments. – 10 Marks [**July 2022**]
5. Management of materials in hospital pharmacy. - 5 Marks [**July 2022**]
6. Professional skills required for hospital pharmacist. - 5 Marks [**July 2022**]
7. Describe in detail hospital pharmacy, its organization and management. 10 Marks [**Nov 2021**]
8. Explain the hospital pharmacy organization and management of materials and Finance. - 10 Marks [**July 2021**]
9. Management of materials and finance in hospital pharmacy. - 5 Marks [**December 2019**]
10. Professional skills required for hospital pharmacist. - 5 Marks [**December 2019**]

CHAPTER 3 – THE BUDGET – PREPARATION & IMPLEMENTATION

1. Define Budget and types of budgets and its implementation. - 5 Marks [**March 2022**]
2. Preparation and implementation of budget. - 5 Marks [**Nov 2021, January 2021**]
3. Types of budgets. - 5 Marks [**July 2019**]

CHAPTER 4 – HOSPITAL DRUG POLICY

(A) PHARMACY & THERAPEUTIC COMMITTEE

1. Discuss in detail about the objectives and significance of a pharmacy and therapeutic committee in a hospital. - 10 marks [**June 2023**]
2. Pharmacy and Therapeutic Committee. – 5 Marks [**March 2022**]
3. Briefly explain the organization and functions of Pharmacy and Therapeutic Committee. - 10 Marks [**July 2022**]
4. Functions of pharmacy and therapeutics committee. – 5 Marks [**July 2021**]
5. Roles and responsibilities of a pharmacy and therapeutic committee. – 10 Marks [**Jan 2021**]
6. Functions of pharmacy and therapeutic committee. – 5 Marks [**July 2019**]
7. Role of pharmacy and therapeutics committee in ADR monitoring 5 Marks [**Dec 2019**]

(B) HOSPITAL FORMULARY

1. Hospital formulary. - 5 marks [**June 2023**]
2. Describe the development and management of hospital formulary. - 10 Marks [**July 2022**]
3. Discuss in detail about hospital formulary including its contents, format and how it is revised. - 10 Marks [**July 2019**]
4. Define hospital formulary. Describe the development and management of hospital formulary. - 10 Marks [**December 2019**]

(C) HOSPITAL COMMITTEE

1. Infection control programme. - 5 marks [**January 2023**]
2. Research and Ethics Committee. - 5 marks [**July 2022**]
3. Members and functions of research and ethics committee. - 5 marks [**Nov 2021**]
4. Discuss about the members of research and ethical committee. - 5 marks [**July 2021**]
5. Structure and functions of infection control committee. - 5 marks [**July 2019**]
6. Briefly explain the organization and functions of infection control committee. - 10 marks [**December 2019**]

(D) DEVELOPING THERAPEUTIC GUIDELINES

1. Steps involved in the development of Therapeutic guidelines. - 5 marks [**March 2022, Nov 2021**]

(E) HOSPITAL PHARMACY COMMUNICATION

1. Newsletter. - 5 marks [**December 2019**]

CHAPTER 5 – HOSPITAL PHARMACY SERVICES**(A) PROCUREMENT & WAREHOUSING OF DRUGS**

1. Warehousing of drugs. – 5 marks [**January 2023**]
2. Procurement and warehousing of drugs.- 5 Marks [**July 2021**]
3. Warehousing of pharmaceuticals. - 5 Marks [**December 2019**]

(B) INVENTORY CONTROL

1. Explain about inventory tools in drug store management and its application. - 10 marks [**June 2023**]
2. Define ABC, VED, EOQ, lead time and safety stock. - 5 Marks [**January 2023**]
3. Define inventory and explain various methods of inventory control methods in detail.- 10 Marks [**March 2022**]
4. Define VED, EOQ, Lead time and safety stock. – 5 Marks [**July 2022**]
5. Purchase procedure for drugs in a hospital pharmacy. – 5 Marks [**Nov 2021**]
6. Describe various methods of inventory control.- 5 Marks [**Nov 2021**]
7. Define inventory control. Explain ABC and VED analysis in detail. – 10 Marks [**July 2021**]
8. Enumerate the steps involved in purchase procedure. Discuss on Vital Essential Desirable (VED) and Economic Order Quantity (EOQ) level in inventory management. – 10 Marks [**January 2021**]
9. Discuss ABC in inventory control. – 5 Marks [**January 2021**]

10. List out the various inventory control techniques and its application with a detailed explanation about ABC analysis in a hospital pharmacy management. – 10 Marks **[July 2019]**

(C) DRUG DISTRIBUTION IN THE HOSPITAL

1. Explain about the different drug distribution system in hospital. - 5 marks **[June 2023]**
2. Write the steps involved in purchase procedure and explain, how will you distribute the drugs based on individual prescription method in hospital. - 10 Marks **[January 2023]**
3. Various drug distribution methods. - 5 Marks **[March 2022]**
4. Inpatient drug distribution in a hospital. - 5 Marks **[Nov 2021]**
5. Explain briefly on individual prescription method. – 5 Marks **[July 2021]**
6. Individual prescription order system. - 5 Marks **[January 2021]**
7. Explain the various drug distribution systems in a hospital. - 10 Marks **[December 2019]**

(D) DISTRIBUTION OF NARCOTIC & CONTROLLED SUBSTANCES

1. Write about distribution of narcotic and other controlled substances.- 5 Marks **[January 2023]**
2. Write a note on dispensing of narcotic and controlled substances. – 5 Marks **[July 2022]**
3. Dispensing of controlled substances. – 5 Marks **[July 2019]**

(E) CENTRAL STERILE SUPPLY SERVICES

1. Explain about the role of pharmacist in central sterile supply department. - 5 marks **[June 2023, July 2019]**
2. Describe about central sterile supply service. - 5 Marks **[January 2023]**
3. Role of pharmacist in central sterile supply services. - 5Marks **[January 2021]**

CHAPTER 6 – MANUFACTURE OF PHARMACEUTICAL PREPARATIONS

1. Powders and its applications. - 5 marks **[June 2023]**
2. Explain about granulation techniques. - 5 marks **[June 2023]**

3. What are the indications and composition of total parenteral nutrition? What are the monitoring parameters for total parenteral formulation? - 5 marks **[June 2023]**
4. Explain in detail about the manufacture of sterile formulations. – 10 Marks **[January 2023]**
5. Discuss in detail the manufacturing methods and quality control test for tablets. - 10 Marks **[January 2023]**
6. Explain any one method of preparation of creams and briefly write its evaluation parameters. - 5 Marks **[January 2023]**
7. Manufacturing of liquid orals - 5 Marks **[January 2023]**
8. Explain the manufacturing procedures for sterile formulation in detail. – 10 Marks **[March 2022]**
9. Define and classify powders. Write a note on mixing of powders. - 5 Marks **[March 2022]**
10. Large volume parenterals. - 5 Marks **[March 2022]**
11. Explain on TPN/ Discuss about total parenteral nutrition. – 5 Marks **[July 2022, July 2021, January 2021]**
12. Small volume parenterals. – 5 Marks **[July 2022]**
13. What is parenteral nutrition? What are the indications and components of total parenteral nutrition? - 10 Marks **[Nov 2021]**
14. Manufacturing of tablet dosage forms. – 5 Marks **[Nov 2021]**
15. Discuss about the manufacture of liquids and creams. – 5 Marks **[July 2021]**
16. Methods of preparation of ointments. - 5 Marks **[January 2021]**
17. Test for pyrogens. – 5 Marks **[July 2019]**
18. Explain various types of powders. - 5 Marks **[December 2019]**
19. Brief on large volume parenteral. - 5 Marks **[December 2019]**

CHAPTER 7 – CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMS

1. What are the education and training activities provided for the hospital pharmacist? - 5 marks **[June 2023]**

2. Role of hospital pharmacist in the education and training program.- 5 marks **[July 2021]**
3. Continuing professional development program.- 5 marks **[January 2021]**
4. Education and training activities of a hospital pharmacist. - 5 marks **[July 2019]**

CHAPTER 8 – RADIO PHARMACEUTICALS- HANDLING & PACKING

1. Handling and packaging of radiopharmaceuticals. – 5 marks **[June 2023]**
2. Mention the responsibilities of pharmacist in handling radiopharmaceuticals. - 5 marks **[March 2022, Nov 2021]**
3. Packaging of radio pharmaceuticals. – 5 marks **[July 2021, January 2021]**
4. Role of pharmacist in handling radio pharmaceuticals. – 5 marks **[July 2019]**

CHAPTER 9 – PROFESSIONAL RELATIONS & PRACTICE OF PHARMACIST

1. Discuss about professional relations and practices of hospital pharmacist. – 10 Marks **[July 2021]**
2. Discuss the various education and training activities of hospital pharmacists and their role with other departments. 10 Marks **[January 2021]**



CLINICAL PHARMACY

(Q.P. Code: 403326)

UNIT 1: DEFINITIONS, DEVELOPMENT AND SCOPE OF CLINICAL PHARMACY

1. Factors contributed for development of clinical pharmacy in India **5 marks (July 22)**
2. Write the scope of clinical pharmacy service. **5 mark (January 2021)**
3. Development and scope of clinical pharmacy. **5 mark (November 2021)**
4. Scope of clinical pharmacy in India. **5 marks (December 2018)**
5. Scope and Development of Clinical Pharmacy Education in India **5 mark (July 18)**
6. Objectives of clinical pharmacy. **5 mark (January 2018)**

UNIT 2: INTRODUCTION TO DAILY ACTIVITIES OF A CLINICAL PHARMACIST

1. Discuss in detail the goals and procedure in medication chart review. **10 marks (June 2023)**
2. Explain the types of drug utilization evaluation (DUE) studies. **5 marks (June 2023)**
3. Describe the barriers to patient counselling and how to overcome them. **5 marks (June 2023)**
4. Explain the types of drug utilization evaluation (DUE) studies. **5 marks (June 2023)**
5. Describe the barriers to patient counselling and how to overcome them. **5 marks (June 2023)**
6. Explain the dimensions of nonverbal communication. **5 marks (June 2023)**
7. What is drug therapy monitoring. Write the role of clinical pharmacist in drug therapy monitoring. **10 marks (January 2023)**
8. Barriers in patient counselling **5 mark (January 2023)**
9. Medication order review. **5-mark dec 2018**
10. Types of drug utilization review. **5 mark (March 2022)**
11. Describe the role of clinical pharmacist in drug therapy monitoring. **5 mark (March 2022)**
12. Write the importance of ward round participation **5 mark (March 2022)**
13. . Explain patient information leaflets. **5 mark (March 2022)**
14. Brief about quality assurance of clinical pharmacy services. **5 mark (March 2022)**
15. Barriers involved in patient counselling. **5 mark (March 2022)**
16. Describe role of clinical pharmacist in drug therapy monitoring. **10 marks (July 2022)**
17. Medication history interview. **5 marks (July 2022)**
18. Communication techniques for effective patient counselling. **5 marks (July 2022)**
19. Types of Drug Utilization Evaluation (DUE) studies. **5 mark (November 2021)**

20. Verbal communication skills needed for effective patient counselling. **5 mark (November 2021)**
21. Ward round participation by clinical pharmacist. **5 mark (November 2021)**
22. Procedure for medication chart review. **5 mark (November 2021)**
23. What is ward round participation. Describe the significances of ward round participation. **5 mark (July 2021)**
24. Quality assurance of clinical pharmacy services. **5 mark (July 2021)**
25. Patient counselling. **5 mark (July 2021)**
26. Write the process of drug utilization cycle. **5 mark (January 2021)**
27. Discuss the different types of ward round s. **5 mark (January 2021)**
28. Elaborate the patient counselling techniques. **5 mark (January 2021)**
29. Discuss drug utilization evaluation (DUE) and drug utilization review (DUR) **10 mark (July 2019)**
30. Discuss the activities of clinical pharmacist in a multispecialty hospital **10 mark (July 2019)**
31. Describe verbal and non-verbal skills required for patient counselling **5 mark (July 2019)**
32. Medication chart review. **5 mark (July 2019)**
33. Discuss in detail about functions and processing steps of drug utilization evaluation. **10 marks (December 2019)**
34. Explain drug utilization evaluation (DUE) cycle **10 marks (December 2018)**
35. Patient medication history interview. **5 mark (January 2018)**
36. Explain the importance of pre-ward round and post-ward round follow-up by clinical pharmacist. **10 mark (July 2018)**
37. Methods for quality assurance of clinical pharmacy services. **5 mark (July 2018)**
38. Discuss in detail about the pharmacist interventions in patient care. **10 mark (January 2021)**
39. Elaborate the importance of medication history in therapeutic management of patients. **10 marks (December 2018)**
40. Brief about significance of pre rounds participation in hospital. **5 marks (December 2018)**

UNIT 3: PATIENT DATA ANALYSIS

1. Explain the patient case history and its structure in brief with examples. **10 mark (March 2022)**

2. Analysis of patient's case history. **5 mark (November 2021)**

UNIT 4: CLINICAL LABORATORY TEST

1. Describe different types of anemia's based on hematological tests. **5 marks (June 2023)**
2. Explain the normal range and clinical significance of liver function tests. **10 marks (June 2023)**
3. Liver Function Test **5 mark (January 2023)**
4. Fluid and Electrolyte balance **5 mark (January 2023)**
5. Write in detail on tests associated with cardiac disorders and its significance. **10 mark (March 2022)**
6. Clinical significance of Forced Expiratory Volume (FEV). **5 mark (July 2022)**
7. Enlist clinical significance of pulmonary function tests. Discuss various lung volume tests with a suitable diagram. **10 mark (July 2022)**
8. Clinical tests associated with cardiac disorders. **5 mark (November 2021)**
9. Renal function test and its significance **5 mark (July 2021)**
10. How would you assess acute myocardial infarction with the aid of various laboratory investigations. Explain. **5 mark (July 2021)**
11. Describe the liver function tests and its significance **10 mark (July 2021)**
12. Enumerate the significance of various investigations of renal disease **10 mark (January 2021)**
13. Renal function test and its significance. **5 mark (July 2019)**
14. Write a brief note on electrolyte balance test. **5 mark (December 2019)**
15. What are the various types of lung volumes to assess respiratory problems **5 mark (July 2019)**
16. Explain common biomarkers measured in cardiac disorders with their clinical significance. **10 mark (December 2019)**
17. Discuss the laboratory test and interpretation of hematological disorders **10 mark (January 2018)**
18. Importance of sodium and potassium in the body. **5 mark (January 2018)**
19. Clinical significance of red cell distribution width (RDW). **5 mark (December 2018)**
20. Importance of red blood cell (RBC) indices. **5 mark (July 2018)**
21. Explain various liver function tests to assess liver synthetic capabilities. **10 mark (July 2018)**

UNIT 5: DRUG & POISON INFORMATION

1. Discuss primary and tertiary poison information resources. **5 marks (June 2023)**
2. Define drug and poison information. Write a note on various drug and poison information sources with suitable examples. **10 mark (January 2023)**
3. Discuss the modified systematic approach to answering drug information queries **10 marks (June 2023)**
4. Differentiation between drug information and poison information. **5 mark (July 2022)**
5. Discuss in detail about poison information services and its resources. **10 mark (March 2022)**
6. Define drug information and explain the various resources for provision of drug information. **10 mark (November 2021)**
7. Describe the systemic approach in answering drug information queries. **10 mark (January 2021)**
8. Discuss various drug information resources with their benefits and its limitations **10 mark (July 2021)**
9. Drug information resources with their benefits and limitations. **10 marks (December 2019)**
10. Brief about systematic approach in answering the drug information queries. **5 mark (July 2019)**
11. Systematic approach in answering drug information queries. **5 mark (December 2018)**
12. Poison information centre. **5 mark (January 2018)**
13. Discuss various drug information resources with their benefits and its limitations **10mark (January 2018)**
14. Drug information resources with suitable examples. **5 mark (July 2018)**

UNIT 6: PHARMACOVIGILANCE

1. Explain pharmacist role in the prevention and management of adverse drug reactions. **5 marks (June 2023)**
2. Predisposing factors for developing ADRs **5 marks (June 2023)**
3. Causality assessment scales **5 marks (June 2023)**
4. Write the mechanism of adverse drug reaction **5 mark (March 2022)**
5. Define causality assessment of Adverse Drug Reaction (ADR). Explain any two methods of causality assessment of ADR in detail. **10 mark (July 2022)**
6. Pharmacovigilance **5 mark (July 2021)**

7. Classify Adverse Drug Reactions (ADRs) and explain the factors affecting the incidence of Adverse Drug Reactions (ADRs). **10 mark (November 2021)**
8. Scales used in causality assessment of adverse drug reactions **5 mark (July 2021)**
9. Brief about de-challenge and re challenge in the adverse drug reaction assessment with examples. **5 mark (January 2021)**
10. Predisposing factors of adverse drug reactions. **5 mark (January 2021)**
11. Types and mechanisms of adverse drug reactions **10mark (January 2021)**
12. Reporting of adverse drug reactions. **5 mark (January 2021)**
13. Explain causality assessment scales in adverse drug reaction reporting. **5 mark (December 2019)**
14. Definition and scope of pharmacovigilance **5 mark (December 2019)**
15. Define and classify adverse drug reaction (ADR). Discuss the mechanisms of ADR **10marks (December 2018)**
16. Define pharmacovigilance, discuss in detail reporting of adverse drug reactions along with causality assessment scales **10 mark (January 2018)**
17. Discuss pharmacovigilance program of India (PvPI). Enumerate role of pharmacist in pharmacovigilance activities **10 mark (July 2018)**

UNIT 7: COMMUNICATION SKILLS

1. Non-verbal communication **5 mark (January 2023)**
2. Identify the communication methods required in clinical situations **5 mark (December 2019)**
3. Non-verbal communication skills required for effective pharmaceutical care services. **.5 mark (December 2018)**
4. Communication skills **5 mark (January 2018)**
5. Verbal communication skills required for effective pharmaceutical care services. **5 mark (July 2018)**

UNIT 8: PHARMACEUTICAL CARE CONCEPTS

1. Explain CORE pharmaceutical care plan. **5 marks (June 2023)**
2. Principles of Pharmaceutical Care **5 mark (January 2023)**
3. Pharmacist's Workup of Drug Therapy (PWDT) for providing pharmaceutical care. **5mark (July 2022)**

4. Explain the format of SOAP note and outline the importance of pharmaceutical care in today's pharmacy practice. **10 mark (November 2021)**
5. The principles of pharmaceutical care **5 mark (July 2021)**
6. Brief about outcome of pharmaceutical care **5 mark (January 2021)**
7. Write the elements of pharmaceutical care. **5 mark (December 2019)**
8. Clinical skills required for providing pharmaceutical care. **5 mark (December 2018)**
9. Concept of pharmaceutical care. **5 mark (July 2018)**

UNIT 9: CRITICAL EVALUATION OF BIOMEDICAL LITERATURE

1. Evaluation of biomedical literature **5 mark (January 2023)**
2. Write the different aspects involved in evaluating the literature. **5 mark (March 2022)**
3. Criteria for evaluating the methods of a published clinical drug study **5mark (July 2022)**
4. What are the different methods involving in evaluation of literature. **5 mark (December 2019)**
5. Critical evaluation of biomedical literature **5 mark (July 2019)**
6. Various parameters to be considered while critically evaluating biomedical literatures **5 mark (July 2018)**
7. Author's background and funding information for judging quality of a publication **5 mark (December 2018)**
8. Detail about critical evaluation of biomedical literature **5 mark (January 2018)**

UNIT 10: MEDICATION ERRORS

1. Define medication errors. Classify the medication errors and describe the factors contributing the medication errors in your practice site. **10mark (January 2023)**
2. Mention the different types of medication errors and explain any four of them. **5 marks (June 2023)**

- 3.Strategies to prevent medication errors. **5mark (July 2022)**
- 4.Impact of medication errors and its prevention. **5 mark (November 2021)**
- 5.Explain the various types of medication errors with example 10 **mark (July 2021)**
- 6.Medication errors **5 mark (July 2019)**
- 7.Write the types of medication errors **5 mark (December 2019)**
- 8.Classification of medication errors with suitable examples. **5 mark (July 2018)**
- 9.Common causes of medication errors. **5 mark (July 2018)**
- 10.Medication error reporting form in the hospital. **5 mark (January 2018)**
11. Methods of detection of medication errors. **5 mark (January 2018)**



BIOSTATISTICS & RESEARCH METHODOLOGY

(QP Code: 404326)



UNIT I: RESEARCH METHODOLOGY

1. Describe the various parametric tests used to determine level of significance of a clinical trial. (10marks)[**June 2023**].
2. Explain research design, components of research design and its advantages. (10marks)[**June2023**].
3. Write a note on report writing. (5marks) [**June 2023**].
4. Briefly explain the different types of clinical study design(10 marks) [**Jan 2023**]
5. Describe the construction and labelling of different types of graphs. (10 marks) [**Jan 2023**]
6. Power of a study. (5 marks) [**Jan 2023**]
7. Interventional studies. (5 marks) [**Jan 2023**]
8. Sample size calculation for comparative experiments. (5 marks) [**Jan 2023**].
9. How will you classify experimental study. Describe the steps in conducting randomized controlled trial. (10marks) [**March 2022**].
10. Explain Type I and Type II error and how to minimize the errors. (5 marks) [**March 2022**].
11. Explain the power of study and confidence interval in statistics. (5 marks) [**March 2022**].
12. Explain about hypothesis and its testing. (5 marks) [**March 2022**].
13. Explain the different type of graphical representation of data with suitable diagrams.(10 marks) [**Nov 2021**]
14. Classify epidemiological studies and explain the methodology of case-control study.(10 marks) [**Nov 2021**]
15. Sample size determination.(5 marks) [**Nov 2021**]
16. Cross-sectional studies.(5 marks) [**Nov 2021**]
17. Give a detailed account of sample size determination.(10 marks) [**July 2021**].
18. Give a detailed account on the following: histogram, pie charts, scatter plots.(10 marks) [**July 2021**].
19. Explain with example null hypothesis.(5 marks) [**July 2021**].
20. Describe the case study method.(5 marks) [**July 2021**].
21. Types of data distribution.(5 marks) [**July 2021**].
22. .Give the importance of designing a methodology.(5 marks) [**July 2021**].
23. Discuss the design and methodology of cohort study. (10 marks) [**Dec 2019**].
24. Explain the different components of a research report. (10 marks) [**Dec 2019**].
25. Type I and type II errors.(5 marks) [**July 2018**].

26. Define epidemiology. Explain in detail various study designs used in epidemiology.(10 marks) [**Jan 2018**].
27. Define sampling. Discuss the various sampling methods with appropriate pharmacy examples. (10 marks) [**Jan 2018**].
28. Explain case control studies.(5 marks) [**Jan 2018**].
29. Explain the various types of graphs. (5 marks) [**Jan 2018**].
30. Report writing. (5 marks) [**Jan 2018**].
31. Briefly explain the different types of observational studies.(10 marks) [**July 2017**].
32. Explain the construction and labelling of pie chart and histogram.(5 marks) [**July 2017**].
33. Case reports and case series.(5 marks) [**July 2017**].
34. Briefly discuss the methodology of different observational studies.(10 marks) [**Jan 2017**].
35. Histogram and pie chart.(5 marks) [**Jan 2017**].
36. Explain Cohort study with example. (5 marks) [**Jan 2017**].
37. What is correlation and describe the methodology of Spearman's correlation.(5 marks) [**Jan 2017**].
38. Classify different types of data with examples. (5 marks) [**Jan 2017**].

UNIT II: BIOSTATISTICS

1. Describe the applications of statistical software SPSS and SAS in biostatistics. (5marks)[**June 2023**].
2. Explain about any two types of data distribution. (5marks) [**June 2023**].
3. Explain the basic idea about correlation and regression analysis.[5marks) [**June 2023**].
4. List out various methods of the presentation of statistical data.(5marks) [**June 2023**].
5. Explain about statistical power and its significance.(5marks) [**June 2023**].
6. Compare and contrast Scatter plot vs Semilogarithmic plots.(5marks) [**June 2023**].
7. Measures of central tendency.(5 marks) [**Jan 2023**]
8. Types of data distribution. .(5 marks) [**Jan 2023**]
9. Estimation of confidence intervals. .(5 marks) [**Jan 2023**]
10. Incidence and prevalence. (5 marks) [**Jan 2023**]
11. Analysis of variance. .(5 marks) [**Jan 2023**]
12. Explain the various types of data distributions. Describe in detail about Poisson distribution. (10marks) [**March 2022**].

13. Epidemiological studies are limited to a sample of individuals from a population. Justify and explain about the key techniques used to assess the range of values within which the actual population estimate is likely to lie. (10marks) [**March 2022**].
14. Explain different measures of central tendency with suitable examples.(5 marks) [**March 2022**].
15. Compare and contrast one-way anova and two-way anova.(5 marks) [**March 2022**].
16. Explain about multiple linear regression with suitable examples. (5 marks) [**March 2022**].
17. Discuss about epi info statistical software and its applications. (5 marks) [**March 2022**].
18. Classify ANOVA tests with examples and describe the general steps involved in the calculation of one-way ANOVA.(10marks) [**Nov 2021**].
19. Non-parametric tests. .(5 marks) [**Nov 2021**].
20. Applications and steps involved in the calculation of paired t-test. .(5 marks) [**Nov 2021**].
21. Define incidence, prevalence, odds ratio, relative risk and attributable risk.(5 marks) [**Nov 2021**].
22. What is correlation and describe the methodology of Spearman's correlation. .(5 marks) [**Nov 2021**].
23. Explain the different measures of spread or dispersion. .(5 marks) [**Nov 2021**].
24. Discuss the attribute risks. (5 marks) [**July 2021**].
25. Explain the frequency of distribution. (5 marks) [**July 2021**].
26. Standard error of mean with example(5 marks) [**July 2021**].
27. Different types of data distribution.(5 marks) [**Dec 2019**].
28. Explain the different measures of central tendency. (5 marks) [**Dec 2019**].
29. Compare the features of parametric and non-parametric tests.(5 marks) [**Dec 2019**].
30. The applications and steps involved in calculation of Chi square test. .(5 marks) [**Dec 2019**].
31. The applications and steps involved in the calculation of PEARSON'S correlation. (5 marks) [**Dec 2019**].
32. SPSS and Epi Info software. (5 marks) [**Dec 2019**].
33. Confidence interval and p value. (5 marks) [**Dec 2019**].
34. What is meant by homogenous data. Name the statistical methods used to analyze homogenous data. Explain the ANOVA method of statistical analysis.(10 marks) [**July 2018**].
35. What is Pearson's and spearman's correlations. Give its applications.(5 marks) [**July 2018**].
36. What is Chi square test. How it is performed.(5 marks) [**July 2018**].

37. Explain power calculation to determine the sample size.(5 marks) [**July 2018**].
38. Incidence and prevalence. (5 marks) [**July 2018**].
39. Statistical softwares.(5 marks) [**July 2018**].
40. How non-parametric data are analyzed. Explain any one statistical method to analyze non-parametric data.(10 marks) [**Jan 2018**].
41. How mean, mode and median are calculated.(5 marks) [**Jan 2018**].
42. What is student 't' test. How it is calculated.(5 marks) [**Jan 2018**].
43. Explain the statistical software of SPSS and epi info. (5 marks) [**Jan 2018**].
44. Explain central tendency. .(5 marks) [**Jan 2018**].
45. Explain the various measures of central tendency and spread (dispersion) with examples.(10 marks) [**July 2017**].
46. Parametric tests. (5 marks) [**July 2017**].
47. Explain the importance of incidence, prevalence and relative risk with examples. (5marks) [**July 2017**].
48. Describe the characteristics of normal distribution with the help of a diagram. (5 marks) [**July 2017**].
49. The applications and general steps involved in the calculation of linear regression. (5 marks) [**July 2017**].
50. Explain the calculation and interpretation of confidence interval. (5 marks) [**July 2017**].
51. The applications and steps involved in the calculation of Pearson's correlation. (5 marks) [**July 2017**].
52. Classify the types of ANOVA with examples and describe the methodology of Oneway ANOVA.(10 marks) [**Jan 2018**].
53. Write the steps involved in calculation of Wilcoxon's signed rank test. (5 marks) [**Jan 2017**]
54. Statistical software SAS and Epi Info. (5 marks) [**Jan 2017**]
55. Power of test and level of significance. (5 marks) [**Jan 2017**]
56. Explain incidence and prevalence with the help of example. (5 marks) [**Jan 2017**]

UNIT III: COMPUTER APPLICATIONS IN PHARMACY

1. Explain the role of computers in inventory control of pharmacy and patient record database management. .(10marks) [**June 2023**].
2. Explain the role of computer in general ledger system.[5marks) [**June 2023**].

3. Explain the applications of computers in drug information storage and retrieval.(10 marks) **[Jan 2023]**.
4. Explain how computer-based system is useful in intravenous solutions and admixture. (5 marks) **[March 2022]**.
5. Explain the application of computers in drug information retrieval. (5 marks) **[Nov 2021]**.
6. Explain the uses of computers in drug information retrieval and storage.(10 marks) **[July 2021]**.
7. Elucidate the use of computers in hospital pharmacy.(5 marks) **[July 2021]**.
8. Discuss the role of computers in hospital pharmacy.(10 marks) **[Dec 2019]**.
9. Explain various inventory control methods in pharmacy.(10 marks) **[July 2018]**.
10. Briefly discuss on : confidential limit calculation in statistics, application of computers in drug information centre.(10 marks) **[July 2018]**.
11. Drug labels and list in pharmacy. (5 marks) **[July 2018]**.
12. Advantages of computerized medication order entry. (5 marks) **[July 2018]**.
13. How patient medication profile is recorded in pharmacy. State its importance.(5 marks) **[Jan 2018]**.
14. Discuss the application of computers in community pharmacy.(10 marks) **[July 2017]**.
15. Explain the role of computers in patient database management and inventory control.(10 marks) **[Jan 2017]**.

BIOPHARMACEUTICS AND PHARMACOKINETICS

(QP CODE: 405326)



UNIT 1 A. DRUG ABSORPTION DRUG DISTRIBUTION C. DRUG ELIMINATION

1. Explain the various mechanisms of drug absorption- 10 marks **(June 2023)**
2. Discuss in detail about non-renal routes of elimination- 10 marks **(June 2023)**
3. Explain the different factors effecting the process of excretion- 5 marks **(March 2023)**
4. Explain on renal dosage adjustment-5 marks **(June 2023)**
5. Explain the physicochemical factors affecting drug absorption-10 marks **(March 2022)**
6. Explain mechanisms of drug absorption -10 marks **(March2022)**
7. Write about the significance of protein binding-5 marks **(July 2022)**
8. Write about the significance of protein binding-5 marks **(July 2022)**
9. Explain reasons for liquid oral solutions are absorbed faster than tablet formulations-5 marks **(March 2022)**
10. Discuss the physiological barriers affecting the distribution of drugs-10 marks **(March 2022)**
11. Discuss the correlation between drug pKa and gastro intestinal pH on drug absorption- 5 marks **(March 2022)**
12. Explain the factors affecting drug distribution-10 marks **(July2022)**
13. Explain the physiologic barriers to drug distribution-10 marks **(July 2022)**
14. Discuss the correlation between drug pKa and gastro intestinal pH on drug absorption- 5 marks **(July 2022)**
15. Explain the concept of apparent volume of distribution-5 marks **(July 2022)**
16. Describe carrier mediated transport of drugs5 marks **(July 2022)**
17. Describe passive diffusion and endocytosis in drug absorption -5 marks **(March 2022)**
18. Define drug distribution and write the factors affecting of drug distribution- 5 marks **(March 2022)**
19. Explain patient related factors affecting drug absorption-10 marks **(Nov2021)**

20. Explain the factors affecting drug distribution-10 marks **(Nov 2021)**
21. Describe facilitated diffusion and active transport in drug absorption- 5 marks **(Nov 2021)**
22. Explain the factors affecting drug distribution-10 marks **(Nov2021)**
23. Briefly explain blood brain barrier – 5 marks **(Jan2021)**
24. Define drug distribution and write the factors affecting of drug distribution- 5 marks **(March 2020)**
25. What is gastric emptying. Explain the factors affecting gastric emptying- 5 marks **(June 2020)**
26. Describe carrier mediated transport of drugs- **5 marks (July2019)**
27. Describe passive diffusion and endocytosis in drug absorption- 5 marks **(July2019)**
28. Describe carrier mediated transport of drugs-5 marks **(July 2018)**
29. Describe passive diffusion and endocytosis in drug absorption-5 marks **(July 2018)**
30. Define drug absorption. Discuss the various factors influencing GI absorption of a drug- 10 marks **(July 2017)**
31. Explain the absorption of drugs by passive diffusion-10 marks **(July 2017)**
32. Describe the phase II biotransformation of drugs. 5 marks **(July 2017)**
33. Explain the concept of loading dose and maintenance dose 5 marks **(July 2017)**

UNIT 2- PHARMACOKINETICS

A. MATHEMATICAL MODEL

B. DRUG LEVELS IN BLOOD.

C. PHARMACOKINETIC MODEL

D. COMPARTMENT MODELS

E. PHARMACOKINETIC STUDY

1. Explain plasma concentration-time profile with a neat diagram - 10 marks **(July 2023)**
2. Explain one compartment open model for repetitive IV bolus administration-5 marks **(March 2022)**

3. Explain one compartment open model for IV bolus administration - 10 marks(**Jan 2021**)
4. Describe the importance and applications of non-compartmental analysis-5 marks (**Jan2021**)
5. Explain mammillary compartment models with suitable illustration-5 marks (**Jan 2021**)
6. Explain the factors affecting gastric emptying-5 marks (**Jan 2021**)
7. Explain the applications of pharmacokinetic model- 5 marks (**Jan 2021**)
8. How to determine the exponents in two compartment open model extra vascular drug administration- 5 marks (**Jan 2021**)
9. Explain physiologic models of pharmacokinetics-5 marks (**July 2019**)
10. Define pharmacokinetic models and mention their uses -5 marks (**July 2018**)
11. Derive all possible pharmacokinetic parameters using one compartment open model Intravenous bolus administration-10 marks (**July 2017**)
12. Describe the purpose of various pharmacokinetic models-10 marks (**July2017**)
13. Explain the pharmacokinetic method for assessing bioavailability- 5 marks (**July 2017**)

UNIT 3. ONE COMPARTMENT OPEN MODEL.

A. INTRAVENOUS INJECTION (BOLUS)

B. INTRAVENOUS INFUSION.

1. How to assess pharmacokinetic parameters after extravascular drug administration in one compartment open model-10 marks (**Mar2023**)
2. Explain various pharmacokinetics parameters involved after oral administration of drug following one compartment open model -10 marks (**March2022**)
3. How to determine KE from urinary excretion data after an IV bolus administration of a drug- 10 marks (**Mar2022**)
4. Describe the one compartment open model pharmacokinetics for oral administration-5 marks (**Mar2020**)
5. Explain various pharmacokinetics parameters involved after oral administration of drug following one compartment open model-5 marks (**Mar2020**)
6. Discuss in detail one-compartment open model for a drug administered as IV infusion- 5 marks (**Jan2021**)

7. Derive the pharmacokinetic parameters for one compartment open model intra venous administration-5 marks **(July2017)**
8. Explain the main reason for giving a drug by slow IV infusion- 5 marks **(July2017)**
9. Explain area under curve and area under first moment curve-5 marks **(July2017)**
10. Discuss the repetitive extra vascular dosing using one compartment open model-5 marks **(July2017)**
11. Explain the physiological pharmacokinetic model- 5 marks **(July2017)**

UNIT 4. MULTICOMPARTMENT MODELS.

A. TWO COMPARTMENT OPEN MODEL.

B. IV BOLUS, IV INFUSION AND ORAL ADMINISTRATION

1. Discuss in detail one-compartment open model for a drug administered as IV infusion and write the schematic representation, graphs and equations-10 marks **(Mar2023)**
2. Explain the kinetics of two compartment open model i.v bolus administration -10marks (**Mar2023**)
3. Explain the concept of non-compartment model -5 marks **(March 2022)**
4. How to determine the exponents in two compartment open model extra vascular drug administration-5 marks **(Jan2021)**
5. Explain the kinetics of two compartment open model i.v bolus administration-10marks **(July 2018)**

UNIT 5. MULTIPLE – DOSAGE REGIMENS.

A. REPITITIVE INTRAVENOUS INJECTIONS – ONE

COMPARTMENT OPEN MODEL

B. REPITITIVE EXTRAVASCULAR DOSING – ONE

COMPARTMENT OPEN MODEL

C. MULTIPLE DOSE REGIMEN – TWO COMPARTMENT

OPEN MODEL

1. How to determine absorption rate constant using Wagner Nelson method-10 marks **(Jan2021)**
2. Mention the pharmacokinetic parameters involved in plasma concentration – time profile study -10 marks **(Jan2021)**
3. How do you determine KE using rate of excretion method from urine data-5 marks **(Jan2021)**
4. How to determine the exponents in two compartment open model extra vascular drug administration-5 marks **(Mar2020)**
5. How to determine absorption rate constant using Wagner Nelson method-5 marks **(Mar2020)**
6. Mention the pharmacokinetic parameters involved in plasma concentration – time profile study-5 marks **(July 2019)**
7. Explain the kinetics of two compartment open model i.v bolus administration-10marks **(July2019)**
8. Explain Wagner and Nelson method-5 marks **(July2018)**
9. How to determine the exponents in two compartment open model extra vascular drug administration- 5marks **(July2018)**

UNIT 6. NONLINEAR PHARMACOKINETICS.

A. INTRODUCTION

B. FACTORS CAUSING NON-LINEARITY.

C. MICHAELIS-MENTON METHOD OF ESTIMATING PARAMETERS

1. Explain reasons why non-linear kinetics is also known as mixed order kinetics concentration- 5 marks **(March2022)**
2. Explain Michalis-Menten equation for non-linear kinetics-5 marks **(March2022)**
3. Explain one compartment open model for repetitive IV bolus administration-10 marks **(Jan2021)**

4. Explain the procedure for determining K_m and V_{max} in Michaelis Menten equation at steady state concentration-10 marks (**July 2019**)
5. Explain causes of nonlinearity of pharmacokinetics and describe non-linear pharmacokinetics with appropriate equation -10 marks (**June2018**)
6. Derive Michaelis-Menten equation and explain about in vitro and in vivo correlation method-10 marks (**July2017**)
7. Discuss the factors causing non-linearity in case of dose dependent pharmacokinetics -5 marks (**July201**)

UNIT 7. NONCOMPARTMENTAL PHARMACOKINETICS.

A. STATISTICAL MOMENT THEORY.

B. MRT FOR VARIOUS COMPARTMENT MODELS.

C. PHYSIOLOGICAL PHARMACOKINETIC MODEL.

1. Explain mammillary compartment models with suitable illustration- 10 marks (**Mar2022**)
2. Describe non compartmental method of drug analysis-10 marks (**Jan2021**)
3. Explain physiologic models of pharmacokinetics -5 marks (**Jan2021**)
4. Discuss non-compartmental pharmacokinetics-5 marks (**Jan 2021**)
5. Explain physiologic models of pharmacokinetics-10 marks (**Mar2020**)
6. Statistical moment theory-5 marks (**July2017**)

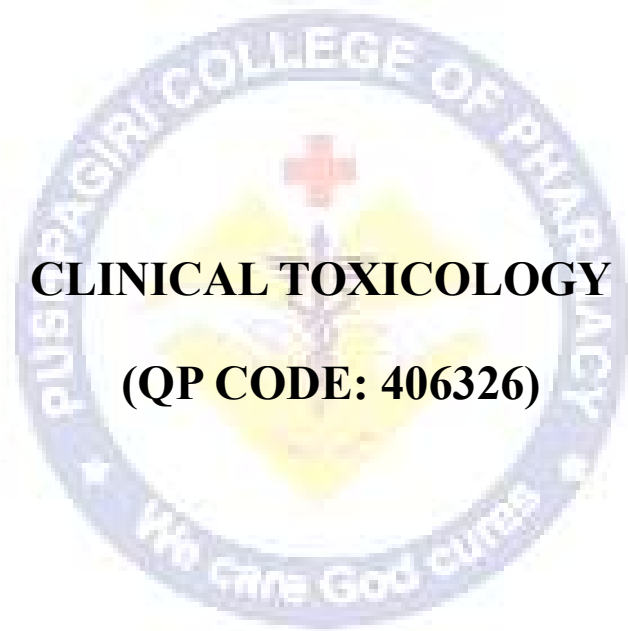
UNIT 8- BIOAVAILABILITY AND BIOEQUIVALENCE

Essay (10 marks)

1. Describe Bioavailability study protocol -10 marks (**Mar2023**)
2. Explain cross-over design used in bioequivalence study and describe drug interactions resulting from altered protein binding -10 marks (**Mar2023**)
3. Describe methods of assessing Bioavailability-5 marks (**Mar2020**)
4. Write the difference between absolute and relative bioavailability-5 marks (**July 2019**)

5. Explain cross-over design used in bioequivalence study-5 marks **(July 2018)**
6. List out the methods to determine bioavailability and explain anyone-5 marks **(July 2018)**
7. Explain the designing and protocol of bioequivalence studies as per CDSCO guidelines-10 marks **(July 2017)**
4. Discuss the bioavailability study protocol-10 marks **(July 2017)**





CLINICAL TOXICOLOGY
(QP CODE: 406326)

CHAPTER 1: GENERAL PRINCIPLES INVOLVED IN THE MANAGEMENT OF POISONING

1. Discuss various gut decontamination processes in general management of poisoning. – 10 Marks **[June 2023]**
2. Explain toxicokinetic principles in the management of poisoning. 5 Marks **[June 2023]**
3. Discuss the role and procedure of gastric lavage in gut decontamination of poisoning. 10 Marks **[January 2023]**
4. Role of antidotes in the management of poisoning. 5 Marks **[January 2023]**
5. Explain the various gut decontamination process in the management of poisoning with its advantages and disadvantages. 10 Marks **[March 2022]**
6. Discuss in brief the various antidotes with its clinical application. 10 Marks **[March 2022]**
7. Write a note on supportive care in toxicology. 10 Marks **[March 2022]**
8. Discuss various general measures in the management of poisoning relevant to
9. Clinical toxicology. 10 Marks **[July 2022]**
10. Toxicokinetics. 5 Marks **[July 2022]**
11. Brief note on the use of multi dose activated charcoal in the elimination enhancement. 5 Marks **[July 2022]**
12. . Discuss in details about elimination enhancement. 10 Marks **[November 2021]**
13. Write a note on antidotes with examples. 5 Marks **[November 2021]**
14. Describe the role of gut decontamination in management of poisoning. 10 Marks **[July 2021]**
15. Explain in detail about the general principles involved in the management of poisoning. 10 Marks **[January 2021]**
16. Toxicokinetics. 5 Marks **[July 2019]**

CHAPTER 2: CLINICAL SYMPTOMS AND MANAGEMENT OF ACUTE POISONING

1. Explain the management of organophosphate poisoning. 10 Marks **[June 2023]**
2. Discuss toxicity with benzodiazepine and its management. 5 Marks **[June 2023]**
3. Discuss the management of acetaminophen poisoning. 5 Marks **[June 2023]**
4. Discuss Mechanism of Toxicity, Clinical Presentations and Management of Tricyclic and other Antidepressants Poisoning. 10 Marks **[January 2023]**
5. Discuss toxicity with barbiturates and its management. 5 Marks **[January 2023]**

6. Discuss the clinical presentation and mechanism of toxicity of NSAIDs poisoning. 5 Marks **[January 2023]**
7. Explain clinical significance of Rumack-Matthew nomogram in acetaminophen toxicity. 5 Marks **[January 2023]**
8. Describe in details the clinical manifestation and management of acute poisoning with ethanol. 10 Marks **[March 2022]**
9. Radiation poisoning – clinical symptoms and management. 10 Marks **[March 2022]**
10. Radiation poisoning. 5 Marks **[January 2023]**
11. Write down the signs and symptoms of amphetamine poisoning. 10 Marks **[March 2022]**
12. Write down the clinical symptoms and antidotes for pyrethroids. 10 Marks **[March 2022]**
13. Clinical symptoms and management of paracetamol poisoning. 5 Marks **[July 2022]**
14. Clinical signs, symptoms and treatment of organophosphates poisoning. 5 Marks **[July 2022]**
15. Clinical symptoms, complication and management of antidepressant overdose. 5 Marks **[July 2022]**
16. Discuss in details about acute poisoning with NSAIDs. 10 Marks **[November 2021]**
17. Acute barbiturates poisoning and its treatment. 5 Marks **[November 2021]**
18. Clinical symptoms and treatment in petroleum product poisoning. 5 Marks **[November 2021]**
19. Carbamates -clinical symptoms and management of acute poisoning. 5 Marks **[November 2021]**
20. Describe the role of gut decontamination in management of poisoning. 10 Marks **[July 2021]**
21. Explain the clinical manifestations of acute ethanol poisoning. 5 Marks **[July 2021]**
22. Inorganic acid poisoning. 5 Marks **[July 2021]**
23. Explain about management of carbamate poisoning. 5 Marks **[July 2021]**
24. Explain the clinical features of amphetamine abuse. 5 Marks **[July 2021]**
25. Management of barbiturate poisoning. 5 Marks **[July 2021]**
26. Explain the clinical features and management of following. 10 Marks **[July 2019]**
 - a. Opiates over dose Pyrethroid poisoning.
27. Explain the clinical features and management of paracetamol poisoning. 10 Marks **[July 2019]**
28. Non-steroidal anti-inflammatory drugs poisoning. 5 Marks **[July 2019]**

29. Explain the effect of radiation. 5 Marks **[July 2019]**
30. Explain the clinical features and management of antidepressant poisoning. 5 Marks **[July 2019]**

CHAPTER 3: CLINICAL SYMPTOMS AND MANAGEMENT OF CHRONIC POISONING

1. Enlist the clinical sign and symptoms of lead poisoning. Explain its management. 10 Marks **[June 2023]**
2. Explain the management of lead poisoning with encephalopathy. 5 Marks **[January 2023]**
3. Clinical symptoms and management of chronic arsenic poisoning. 5 Marks **[July 2022]**
4. Short note on iron poisoning. 5 Marks **[November 2021]**
5. Explain the clinical manifestations and management of arsenic poisoning. 10 Marks **[July 2021]**
6. Describe the management of copper poisoning 5 Marks **[July 2021]**
7. Explain the clinical features and management of following. 10 Marks **[July 2019]**
 - a. Iron over dose Copper sulphate poisoning

CHAPTER 4: VENOMOUS SNAKE BITES

1. Enlist the indications for requirement of antivenom administration in haemotoxic snakes. 5 Marks **[June 2023]**
2. Explain the sign and symptoms of a cobra bite. Enlist complications of administration of anti-venom. 10 Marks **[January 2023]**
3. Describe the general management, early manifestations and complications of snake bite injuries. 10 Marks **[March 2022]**
4. Explain the clinical effects of venoms. 10 Marks **[March 2022]**
5. What are the different families of venomous snakes 5 Marks **[July 2021]**
6. Enlist clinical features and management of snake bite poisoning. 5 Marks **[July 2019]**

CHAPTER 5: PLANT POISONING

1. Mushroom poisoning with examples. 5 Marks **[June 2023]**
2. Clinical symptoms and management of mycotoxins. 10 Marks **[March 2022]**
3. Clinical symptoms and management of plant poisoning. 5 Marks **[July 2022]**
4. Explain the clinical symptoms and management of mycotoxins. 5 Marks **[July 2019]**

5. Explain the clinical features and management of mushroom poisoning. 5 Marks **[July 2019]**

CHAPTER 6: FOOD POISONINGS

1. Food poisoning. 5 Marks **[January 2023]**
2. Discuss the signs, symptoms, diagnosis and treatment of food poisoning. 10 Marks **[July 2022]**

CHAPTER 7: ENVENOMATIONS

1. Enumerate the clinical features of arthropod bites and treatment of anaphylaxis. 5 Marks **[November 2021]**

CHAPTER 8: SUBSTANCE ABUSE

1. Discuss mechanism of toxicity, clinical presentation and treatment of opioid poisoning. 5 Marks **[June 2023]**
2. Explain the complications of amphetamine abuse. 5 Marks **[June 2023]**
3. Discuss the mechanism of toxicity and clinical presentation of cannabis abuse. 5 Marks **[January 2023]**
4. Write down the signs and symptoms of tobacco abuse and its treatment of dependence. 10 Marks **[March 2022]**
5. Discuss in details about signs and symptoms of hallucinogen abuse and its treatment. 10 Marks **[July 2022]**
6. Signs and symptoms of substance abuse and treatment of dependence of tobacco. 5 Marks **[July 2022]**
7. Discuss in detail the signs, symptoms and treatment of cannabis dependence in toxicological practice. 10 Marks **[November 2021]**
8. Management of opioid poisoning. 5 Marks **[November 2021]**
9. Clinical symptoms and management of LSD abuse. 5 Marks **[November 2021]**
10. Hallucinogens 5 Marks **[July 2021]**
11. Explain the clinical signs and symptoms of LSD abuse and its management. 5 Marks **[July 2019]**

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



FIRST YEAR PHARM D (PB)
QUESTION BANK

PHARMACOTHERAPEUTICS – I & II
(Q.P. CODE: 101340)



UNIT-I: CARDIOVASCULAR SYSTEM

1. Discuss the role of various lipid lowering agents in the management of dyslipidemia (10 marks) (June 2023).
2. Management of angina pectoris (5 marks) (June 2023).
3. Discuss the management of hypertension according to JNC-8 guidelines (5 marks) (January 2023).
4. Role of statins in dyslipidemia management. (5 marks) (January 2023).
5. Pulmonary function test for asthma (10 marks) (July 2022).
6. Write a note on types of hypertension and its complications(5 marks) (July 2022).
7. Classify angina and give a note on its management(5 marks) (March 2022).
8. Electro-physiology of heart (5 marks) (July 2021).
9. (5 marks) Pathophysiology of hyperlipidemias(5 marks) (November 2021).
10. Explain the pharmacotherapeutics regimen for hyperlipidemias (5 marks) (July 2021).
11. Classify angina and give a note on its management (5 marks) (January 2021).
12. Discuss the etiology, pathophysiology and pharmacotherapy of congestive cardiac failure (10 marks) (December 2019).
13. Write about pharmacotherapy of hypertension with its treatment algorithm (10 marks) (July 2019).
14. Explain the pharmacotherapy of acute myocardial infarction (5 marks) (July 2018).
15. Explain the management of dyslipidemia (5 marks) (July 2018)

UNIT-II: RESPIRATORY SYSTEM

1. Explain the management of asthma(10 marks) (June 2023).
2. Explain step-wise management of chronic asthma in adults and children(10 marks) (January 2023).
3. Describe the management of bronchial asthma and add a note on pulmonary function tests (10 marks) (November 2021).

4. Define spirometry. Explain pulmonary function tests (10 marks) (January 2021).
5. Define COPD. Explain types of COPD and its pathophysiology(10 marks) (July 2019).
6. Explain the pathophysiology and pharmacotherapy of asthma (10 marks) (July 2018).
1. Pulmonary function test for asthma(5 marks) (July 2022).
2. Write about step wise management of asthma in adults (5 marks) (March 2022).
3. Management of Asthma (5 marks) (July 2021), (January 2021)
4. Common therapeutic problems in asthma(5 marks) (July 2019).

UNIT-III: ENDOCRINE SYSTEM

1. Discuss pharmacotherapy of oral contraceptives add notes on hormone replacement therapy (10 marks) (July 2022).
2. Describe in detail about thyroid and parathyroid disorder(10 marks) (March 2022).
3. Explain about types of diabetes and its complications (10 marks) (January 2021).
4. Explain about pathophysiology and complications of hypothyroidism(10 marks) (July 2019).

Short notes (5 marks)

1. Management algorithm for Type 2 diabetes mellitus (5 marks) (June 2023).
2. Thyroid disorders (5 marks) (June 2023).
3. Management of osteoporosis in men (5 marks) (January 2023).
4. Osteoporosis (5 marks) (July 2022), (March 2022), (July 2021).
5. Complications of diabetes mellitus (5 marks) (November 2021).
6. Hyperthyroidism (5 marks) (November 2021).
7. Oral contraceptives (5 marks) (November 2021).
8. Insulin regimen in type I diabetes mellitus (5 marks) (July 2021).
9. Pathophysiology of diabetes (5 marks) (January 2021).

10. Define hypothyroidism. Explain its clinical manifestations (5 marks) (January 2021).
11. Define oral contraceptives and its complications (5 marks) (July 2019).
12. Explain the complications and management of type II diabetes mellitus (5 marks) (July 2018).
13. Explain the pathophysiology and management of hypothyroidism (5 marks) (July 2018).

UNIT-IV: GENERAL PRESCRIBING GUIDELINES

1. Discuss the general prescribing guidelines for pediatric patients (10 marks) (June 2023).
2. Discuss the general prescribing guidelines for pediatric and geriatric patients (10 marks) (July 2021).
3. Pediatric dosage calculation methods(5 marks) (January 2023).
4. Prescribing guidelines for pediatrics (5 marks) (July 2022), (March 2022), (December 2019).
5. General prescribing guidelines during pregnancy(5 marks) (January 2021).
6. General prescribing guidelines for geriatric patients (5 marks) (July 2019).

UNIT-V: OPHTHALMOLOGY

1. Treatment of bacterial conjunctivitis (5 marks) (June 2023).
2. Treatment of viral conjunctivitis (5 marks) (January 2023).
3. Discuss the management of glaucoma (5 marks) (March 2022)
4. Explain pathology, clinical symptoms and management of glaucoma (10 marks) (July 2022).
5. Discuss the etiology and pathophysiology of glaucoma and describe the algorithm of the treatment of primary open-angle glaucoma (10 marks) (July 2021).

UNIT-VI: INTRODUCTION TO RATIONAL DRUG USE

1. WHO drug use indicators (5 marks) (January 2023).
2. Role of pharmacist in rational drug use(5 marks) (March 2022), (July 2021).

UNIT-VII: INFECTIOUS DISEASE

1. Principles of surgical antibiotic prophylaxis (5 marks) (June 2023).
2. Complicated urinary tract infections(5 marks) (January 2023).
3. Short notes on malaria(5 marks) (July 2022).
4. Explain drug used in viral infections (5 marks) (March 2022).
5. Fungal infections (5 marks) (November 2021).
6. Management of chloroquine resistant malaria(5 marks) (July 2021).
7. Opportunistic infection in HIV (5 marks) (July 2021).
8. Explain details in management of tuberculosis(5 marks) (December 2019).
9. Gastroenteritis (5 marks) (December 2019).
10. Infective endocarditis(5 marks) (December 2019)
11. Sepsis(5 marks) (December 2019).
12. Explain the pathophysiology and first line drugs used in the management of tuberculosis (10 marks) (July 2018).
13. Explain the management of septicemia (5 marks) (July 2018).
14. Explain the prevention and radical cure for malaria(5 marks) (July 2018).

UNIT-VIII: MUSCULOSKELETAL DISORDERS

1. Discuss the role of Disease-Modifying Anti-Rheumatic Drugs (DMARDs) in the management of rheumatoid arthritis (10 marks) (January 2023).
2. Pharmacotherapy of gout (5 marks) (June 2023).
3. Explain the difference between rheumatoid arthritis and osteoarthritis (5 marks) (March 2022).
4. Discuss the pharmacotherapy of rheumatoid arthritis (10 marks) (November 2021).
5. Explain the clinical markers for rheumatoid arthritis(5 marks) (January 2021).
6. Pathophysiology and management of rheumatoid arthritis (5 marks) (December 2019).

7. Role of biological modifiers in the management of rheumatoid arthritis(5 marks) (July 2018).

UNIT-IX: RENAL SYSTEM

1. Advantages and disadvantages of different types of renal dialysis (5 marks) (June 2023).
2. Explain the pathogenesis, clinical manifestations and management of chronic renal failure (10 marks) (November 2021).
3. Explain drug induced renal disorders(5 marks) (July 2019).
4. Describe the long-term complications and its management in chronic renal failure (5 marks) (July 2018).

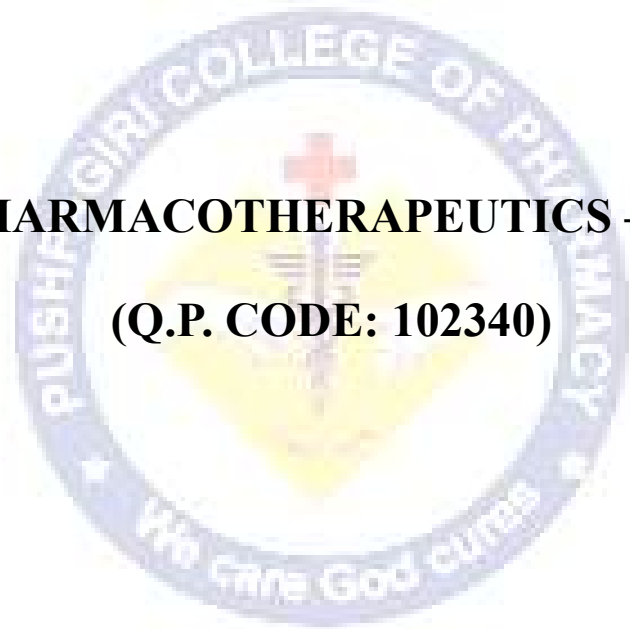
UNIT-X: ONCOLOGY

1. Staging and adjuvant therapy in breast cancer(5 marks) (January 2023).
2. Chemotherapy of breast cancer (5 marks) (July 2022).
3. Principles of Chemotherapy (5 marks) (November 2021), (July 2021).
4. Explain the classification of chemotherapeutic drugs (5 marks) (January 2021).

UNIT-XI: DERMATOLOGY

1. Management of impetigo (5 marks) (June 2023).
2. Management of scabies (5 marks) (January 2023).
3. Management of psoriasis (5 marks) (July 2022).
4. Management of eczema (5 marks) (November 2021).
5. Define psoriasis. Discuss its types, pathogenesis and its management in detail (10 marks) (December 2019).

PHARMACOTHERAPEUTICS – III
(Q.P. CODE: 102340)



Unit-I: GASTROINTESTINAL SYSTEM

1. Explain the etiology, pathophysiology and the drug therapy of peptic ulcer disease (10 marks) (June 2023).
2. Pathophysiology of alcoholic liver disease (05 marks) (June 2023).
3. Elaborate the clinical manifestations and management of complications of alcoholic liver disease (10 marks) (January 2023).
4. Pharmacotherapy of ulcerative colitis (05 marks) (January 2023).
5. Pathogenesis and management of Non-Steroidal Anti-Inflammatory Drugs (NSAID) induced ulcers (05 marks) (January 2023).
6. Discuss the etiology, pathophysiology and clinical manifestations of peptic ulcer disease (10 marks) (March 2022).
7. The manifestations and treatment of Crohn's disease (05 marks) (March 2022).
8. Discuss the clinical manifestations and pharmacotherapy of viral hepatitis (05 marks) (March 2022).
9. Elaborate the clinical manifestations and management of Inflammatory bowel disease (10 marks) (July 2022).
10. Explain on clinical presentation and management of any two complications of alcoholic liver disease (05 marks) (July 2022).
11. Elaborate the etiopathogenesis, manifestations and management of gastro esophageal reflux disease (10 marks) (November 2021).
12. The pathogenesis and pharmacotherapy of ulcerative colitis (05 marks) (November 2021).
13. Elaborate the etiopathogenesis, manifestations and pharmacotherapy of alcoholic liver disease (10 marks) (January 2021).
14. Pharmacotherapy of gastro esophageal reflux disease (05 marks) (January 2021).

15. Ulcerative colitis (05 marks) (January 2021).
16. Describe the pathophysiology, clinical manifestations and pharmacotherapy of peptic ulcer disease (10 marks) (July 2019).
17. Drug induced liver disorders (05 marks) (July 2019).
18. Discuss the etiopathogenesis, manifestations and pharmacotherapy of Inflammatory bowel disease (10 marks) (December 2019).
19. Viral Hepatitis (05 marks) (December 2019).
20. Drug therapy for peptic ulcer disease (05 marks) (December 2019).
21. What is hepatitis B and its treatment (05 marks) (December 2018).
22. Management of inflammatory bowel disease (05 marks) (December 2018).
23. Explain the etiopathogenesis, manifestations and drug therapy of Crohn's disease (10 marks) (July 2018).
24. The manifestations and management of alcoholic liver disease (05 marks) (July 2018).
25. Discuss about the drugs used in the treatment of peptic ulcer disease (05 marks) (July 2018).
26. Drug induced liver injury (05 marks) (July 2018).

Unit-II: HAEMATOLOGICAL SYSTEM

1. Explain on etiology and management of iron deficiency anemia (05 marks) (January 2023).
2. Classify anemias. Discuss in detail the etiopathogenesis, manifestations and pharmacotherapy of Iron deficiency anemia (10 marks) (June 2023), (July 2018).
3. Discuss the etiology and pathophysiology of venous thromboembolism (05 marks) (July 2022).
4. Briefly explain the mechanism and management of any two drug induced blood disorders (05 marks) (July 2022).
5. Classify anemias. Discuss in detail the pathogenesis and management of megaloblastic

anemia (10 marks) (March 2022).

6. Drug induced aplastic anemia (05 marks) (March 2022).

7. Explain in detail the etiopathogenesis, clinical manifestations and management of hemolytic anemia (10 marks) (November 2021).

8. Drug induced agranulocytosis (05 marks) (June 2023), (November 2021).

9. Explain the etiopathogenesis, clinical manifestations and pharmacotherapy of deep vein thrombosis (10 marks) (January 2021).

10. Megaloblastic anemia (05 marks) (January 2021).

11. Drug induced thrombocytopenia (05 marks) (January 2021).

12. Hemolytic anemia (05 marks) (December 2019).

13. Pathogenesis of venous thromboembolism (05 marks) (July 2019)

14. Iron deficiency anaemia (05 marks) (July 2019).

15. The manifestations and management of deep vein thrombosis (05 marks) (July 2018).

16. Briefly write the pathophysiology and treatment of megaloblastic anaemia (10 marks) (December 2018).

Unit-III: NERVOUS SYSTEM

1. Discuss the etiopathogenesis, clinical manifestations and pharmacotherapy of stroke (10marks) (June2023).

2. Pharmacotherapy of Parkinsonism (05 marks) (June 2023).

3. Newer antiepileptics (05 marks) (June 2023).

4. Explain the clinical manifestations and pharmacotherapy of ischemic stroke (10 marks) (January 2023).

5. Discuss the pathophysiology and management of primary generalized seizures (05 marks) (January 2023).

6. Explain the etiopathogenesis and management of stroke (05 marks) (March 2022).
7. The drugs used in the management of parkinsonism (05 marks) (March 2022).
8. Write the pathophysiology and non-pharmacological management of hemorrhagic stroke (05 marks) (July 2022).
9. Write the diagnostic tests and management of partial seizures (05 marks) (July 2022).
10. Explain the clinical manifestations and pharmacotherapy of parkinsonism (10 marks) (July 2022).
11. Explain the pathogenesis, manifestations and drug therapy of parkinsonism (10 marks) (November 2021).
12. Discuss the drugs used in management of epilepsy (05 marks) (November 2021).
13. The manifestations and drug therapy of ischemic stroke (05 marks) (November 2021).
14. Pathophysiology of stroke (05 marks) (January 2021).
15. Describe the pathophysiology, diagnosis and pharmacotherapy of parkinsonism (10 marks) (July 2019).
16. Discuss the types of epilepsy and its management (05 marks) (July 2019).
17. Classify epilepsy. Discuss the manifestations and pharmacotherapy of epilepsy (10 marks)(December 2019).
18. Pharmacotherapy of Alzheimer's disease (05 marks) (December 2019).
19. Pharmacotherapy of stroke (05 marks) (December 2019).
20. Classify epilepsy. Discuss the role of newer antiepileptic drugs in the management of epilepsy (10 marks) (July 2018).
21. The clinical symptoms and treatment of Alzheimer's disease (05 marks) (July 2018).
22. Discuss in detail about pathophysiology and management of Alzheimer's (10 marks) (December 2018).

23. Management of epilepsy (05 marks) (December 2018).

24. Management of stroke (05 marks) (December 2018).

Unit-IV: PSYCHIATRY DISORDERS

1. Etiopathogenesis of Schizophrenia (05 marks) (June 2023).

2. Insomnia (05 marks) (June 2023).

3. Explain the pathogenesis and management of schizophrenia (10 marks) (January 2023).

4. Write the pathophysiology and diagnostic criteria for mania (05 marks) (January 2023).

5. Explain the pathogenesis and management of bipolar affective disorder (10 marks) (July 2022).

6. Schizophrenia (05 marks) (July 2022).

7. Explain the pathophysiology and pharmacotherapy of insomnia (05 marks) (March 2022).

8. Explain the adverse effects of typical antipsychotics (05 marks) (March 2022).

9. Discuss the manifestations and management of obsessive compulsive disorder (05 marks) (November 2021).

10. Explain the role of atypical antipsychotics in the management of schizophrenia (05 marks) (November 2021).

11. The drugs used in the management of depression (05 marks) (November 2021).

12. Discuss the clinical classification, symptoms and pharmacotherapy of Schizophrenia (10marks) (January 2021).

13. Pharmacotherapy of obsessive compulsive disorders (05 marks) (December 2019).

14. Antipsychotics (05 marks) (December 2019).

15. Pharmacotherapy of anxiety disorders (05 marks) (January 2021), (July 2019).

16. What is schizophrenia. Discuss the clinical subtypes and pharmacotherapy of schizophrenia (10marks) (July 2019).

17. Types of anxiety disorders (05 marks) (December 2018).
18. Pathophysiology of sleep disorder (05 marks) (December 2018).
19. Discuss the management of obsessive compulsive disorder (05 marks) (December 2018).
20. Discuss about the pharmacotherapy of anxiety (05 marks) (July 2018).

Unit-V: PAIN MANAGEMENT

1. Drugs used in pain management (05 marks) (June 2023)
2. Trigeminal neuralgia (05 marks) (June 2023).
3. Explain pain pathway (05 marks) (January 2023).
4. Glossopharyngeal neuralgia (05 marks) (January 2023).
5. Write the pain pathway cycle and its management (10 marks) (December 2018)
6. Explain the pathophysiology and drug therapy of trigeminal neuralgia (05 marks) (March 2022).
7. List down different types of primary headaches and briefly explain the management of migraine (05 marks) (July 2022).
8. Explain the pathophysiology of pain and the role of NSAIDs in pain management (05 marks) (November 2021).
9. Migraine (05 marks) (January 2021).
10. Discuss the pain pathways (05 marks) (July 2019).
11. Explain trigeminal neuralgia (05 marks) (July 2019).
12. Headache (05 marks) (December 2019).
13. Explain the pathogenesis and management of migraine (05 marks) (July 2018).
14. The pathogenesis and management of post herpetic neuralgia (05 marks) (July 2018).
15. Tension type headache (05 marks) (December 2018).

Unit-VI: EVIDENCE BASED MEDICINE

1. Explain the importance of evidence based medicine (05 marks) (January 2023).
2. Explain the clinical significance of evidence based medicine (05 marks) (March 2022).
3. Steps of evidence based medicine (05 marks) (July 2022).
4. Evidence based medicine (05 marks) (January 2021).
5. Discuss the significance and concepts of evidence based medicine (10 marks) (December 2019)





HOSPITAL PHARMACY

(QP Code: 103340)

CHAPTER 1 – HOSPITAL –ITS ORGANISATION AND FUNCTIONS

1. Describe the various supportive services in a hospital. - 5 Marks [January 2021]
2. Classify the different types of hospitals with suitable examples. - 5 Marks [December 2019]

CHAPTER 2 – HOSPITAL PHARMACY- ORGANISATION & MANAGEMENT

1. Explain material management and finance in hospital pharmacy. - 5 Marks [Nov 2021]
2. Describe in detail the roles and responsibilities of hospital pharmacist. - 10 Marks [January 2021]
3. The material management in a hospital pharmacy. -5 Marks [January 2021]
4. Describe in detail the location, layout and infrastructure of a hospital pharmacy. 10 Marks [July 2019]
5. The procedure for material management in a hospital pharmacy. -5 Marks [July 2019]
6. Explain the role of pharmacist in the purchase of drugs for a hospital pharmacy. -10 Marks [December 2019]
7. What are the objectives and functions of a hospital pharmacy? - 5 Marks [December 2019]

CHAPTER 3 – THE BUDGET – PREPARATION & IMPLEMENTATION

1. Explain the role of pharmacist in budget preparation and implementation. - 5 Marks [January 2021]
2. Explain the budget preparation in a hospital pharmacy. - 5 Marks [December 2019]

CHAPTER 4 – HOSPITAL DRUG POLICY

(A) PHARMACY & THERAPEUTIC COMMITTEE

1. Define Pharmacy and Therapeutics Committee. Explain the objectives, composition and functions of this committee. - 10 Marks [Nov 2021]
2. Explain in detail the composition and functions of pharmacy and therapeutics committee. - 10 Marks [January 2021]

(B) HOSPITAL FORMULARY

1. Brief on guiding principles in selection for admitting or deleting drugs in a formulary. - 5 Marks [Nov 2021]
2. Define hospital formulary. Explain its objectives. - 5 Marks [January 2021]

3. What is hospital formulary? Explain the contents of hospital formulary. -5 Marks **[July 2019]**
4. Define hospital formulary. Explain the contents and guiding principles of hospital Formulary. -10 Marks **[December 2019]**

(C) HOSPITAL COMMITTEE

1. Hospital committees. - 5 Marks **[June 2023]**
2. Explain in detail the composition and functions of infection control committee. - 5 Marks **[December 2019]**

(D) DEVELOPING THERAPEUTIC GUIDELINES

1. Explain the steps involved in developing therapeutic guidelines. - 5 Marks **[June 2023]**
2. Explain the process of development of standard therapeutic guidelines. - 5 Marks **[July 2019]**

(E) HOSPITAL PHARMACY COMMUNICATION

1. Pharmacy Newsletter. - 5 Marks **[Nov 2021]**

CHAPTER 5 – HOSPITAL PHARMACY SERVICES

(A) PROCUREMENT & WAREHOUSING OF DRUGS

1. Warehousing of drugs in hospital pharmacy. - 5 Marks **[June 2023]**

(B) INVENTORY CONTROL

1. Explain various methods of inventory control. - 5 Marks **[June 2023]**
2. Define purchase and the procedures involved in the purchase of drugs for hospital Pharmacy. - 10 Marks **[Nov 2021]**
3. VED and EOQ methods in inventory control. - 5 Marks **[January 2021]**
4. Define inventory control. List the various methods of inventory control and explain any two methods in detail with its advantages and disadvantages. – 10 Marks **[July 2019]**
5. Describe the various methods of inventory control. Explain in detail ABC analysis and VED analysis. – 10 Marks **[December 2019]**

(C) DRUG DISTRIBUTION IN THE HOSPITAL

1. Drug distribution system in hospital. - 5 Marks **[June 2023]**
2. Explain about complete floor stock system of drug distribution. – 10 Marks **[Nov 2021]**
3. Unit dose drug distribution method. - 5 Marks **[Nov 2021]**
4. Explain the different drug distribution system for IP with its merits and demerits. - 10 Marks **[January 2021]**
5. Describe the procedure for purchasing drugs in large hospital. - 10 Marks **[July 2019]**
6. Explain the floor stock distribution of drugs in a hospital. - 5 Marks **[July 2019]**

(D) DISTRIBUTION OF NARCOTIC & CONTROLLED SUBSTANCES

1. Role of pharmacist in the isotope pharmacy. - 5 Marks **[June 2023]**
2. Dispensing of narcotic and controlled substances. - 5 Marks **[Nov 2021]**
3. Describe the criteria for the distribution of Narcotic and other controlled substances. – 5 Marks **[December 2019]**

(E) CENTRAL STERILE SUPPLY SERVICES

- 1.. **Describe** the roles of pharmacist in Central Sterile Supply Services. – 5 Marks **[Jan 2021]**
2. Enlist the various functions of CSSR in a hospital. – 5 Marks **[July 2019]**

CHAPTER 6 – MANUFACTURE OF PHARMACEUTICAL PREPARATIONS

1. Explain the manufacturing procedures for sterile formulation in detail.- 10 Marks **[June 2023]**
2. Hard and soft gelatin capsules.- 5 Marks **[June 2023]**
3. Monitoring parameters for total parenteral nutrition. - 5 Marks **[June 2023]**
4. Define and classify powders. Write a note on mixing of powders. -5 Marks **[Nov 2021]**
5. Explain in detail the manufacturing of large volume parenterals. - 5 Marks **[January 2021]**
6. Explain the manufacture of large volume parenterals. - 5 Marks **[July 2019]**
7. The preparation of TPN. - 5 Marks **[December 2019]**

CHAPTER 7 – CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMS

1. Explain pharmacist role in education and training programme. - 10 Marks [**June 2023**]
2. Brief on continuing professional development programs. - 5 Marks [**Nov 2021**]
3. Explain the role of hospital pharmacist in external teaching programmes. - 5 Marks [**July 2019**]
4. List the various objectives of CPD programme. - 5 Marks [**December 2019**]

CHAPTER 8 – RADIO PHARMACEUTICALS- HANDLING & PACKING

1. Packaging and handling of radiopharmaceuticals. - 5 Marks [**Nov 2021**]
2. Define radiopharmaceuticals. Give the therapeutic and diagnostic applications of radiopharmaceuticals. - 5 Marks [**July 2019**]
3. Describe about the radio isotope generator. - 5 Marks [**December 2019**]

CHAPTER 9 – PROFESSIONAL RELATIONS & PRACTICE OF PHARMACIST

1. Enumerate the professional relations and practices of hospital pharmacist.-10 Marks [**June 2023**]
2. Explain the professional relations and practices of hospital pharmacist. -5 Marks [**January 2021**]



CLINICAL PHARMACY

(Q.P. Code: 104340)

UNIT 1: DEFINITIONS, DEVELOPMENT AND SCOPE OF CLINICAL PHARMACY

1. Objectives of clinical pharmacy. **(Jan 2021)**
2. Explain the scope of clinical pharmacy in India **(July 2018)**

UNIT 2: INTRODUCTION TO DAILY ACTIVITIES OF A CLINICAL PHARMACIST

1. Enumerate the activities of clinical pharmacist included in drug therapy monitoring and describe the treatment chart review 10 mark **(June 2023)**
2. Explain the importance of ward round participation 5 mark **(June 2023)**
3. Explain briefly about the barriers in patient counselling 5 mark **(June 2023)**
4. Describe patient counselling with examples. 10 mark **(Nov 2021)**
5. Discuss the activities of clinical pharmacist in a multispecialty hospital. 10 mark **(Nov 2021)**
6. Medication chart review. 5 mark **(Nov 2021)**
7. Medication History Interview. 5 mark **(Nov 2021)**
8. Ward round participation. 5 mark **(Jan 2021)**
9. Patient counselling. 5 mark **(Jan 2021)**
10. DUE cycle with examples 5 mark **(Jan 2021)**
11. Define patient counselling. Explain in detail about the various patient counselling techniques and its barriers.10 mark **(July 2018)**
12. Describe the various activities performed by the clinical pharmacists in secondary care hospital. Explain the aim, goal and outcome of any two activities 10 mark **(July 2018)**
13. Enumerate on: non-verbal communication 5 mark **(July 2018)**
14. Enumerate on the information to be obtained during the medication history interview 5 mark **(July 2018)**
15. What is drug utilization evaluation and mention its objectives 5 mark **(July 2018)**
16. Explain about ward round participation 5 mark **(July 2018)**

UNIT 3: CLINICAL LABORATORY TEST

1. Explain the various tests used to assess the liver function with its normal values and its clinical significance 5 mark **(June 2023)**
2. Describe microbial sensitivity test 5 mark **(June 2023)**
3. Tests associated with cardiac disorders. 5 mark **(Nov 2021)**
4. Various types of lung volumes. 5 mark **(Nov 2021)**

5. Microbiological culture sensitivity tests. 5 mark **(Jan 2021)**
6. Discuss on renal function test and its significance 5 mark **(Jan 2021)**
7. Describe on the various pulmonary function tests used to assess the lung function 5 mark **(July 2018)**

UNIT 5: DRUG & POISON INFORMATION

1. Define: drug information. Enumerate on various resources used to answer drug information queries with its merits and demerits 10 mark **(June 2023)**
2. Preparation of written and verbal reports. 5 mark **(Nov 2021)**
3. Explain sources of drug information. 5 mark **(Nov 2021)**
4. Write in detail poison information services and poison information resources. 10 mark **(Jan 2021)**

UNIT 6: PHARMACOVIGILANCE

1. Define: pharmacovigilance. Explain the various causality assessment methods with examples. 10 mark **(June 2023)**
2. Explain the various predisposing factors of adverse drug reactions 5 mark **(June 2023)**
3. Role of pharmacist in management of ADR. 5 mark **(Nov 2021)**
4. Definition, scope and aims of pharmacovigilance. 10 mark **(Jan 2021)**
5. Scales used in causality assessment of adverse drug reactions 5 mark **(Jan 2021)**
6. Describe on the classification of adverse drug reactions 5 mark **(July 2018)**

UNIT 7: PHARMACEUTICAL CARE CONCEPTS

1. SOAP notes 5 mark **(June 2023)**
2. What are the principles of pharmaceutical care. Add a note on quality assurance of clinical pharmacy services. 10 mark **(Jan 2021)**

UNIT 8: CRITICAL EVALUATION OF BIOMEDICAL LITERATURE

1. Describe briefly on the critical evaluation of literature. 5 mark **(June 2023)**
2. Critical evaluation of biomedical literature. 5 mark **(Nov 2021)**
3. Describe briefly on the evaluation of drug information literature 5 mark **(July 2018)**

UNIT 9: MEDICATION ERRORS

1. Describe about the various methods used to prevent medication errors with suitable examples. 5 mark **(June 2023)**
2. Various categories of medication errors with example. 10 mark **(Nov 2021)**
3. Medication error reporting form in the hospital. 5 mark **(Jan 2021)**
4. Define medication error. Describe about the various detection and prevention methods of medication error with suitable examples. 10 mark **(July 2018)**



BIOSTATISTICS & RESEARCH METHODOLOGY
(QP Code: 105340)



UNIT I: RESEARCH METHODOLOGY

1. Explain about sample size determination. (10 Marks) [**June 2023**].
2. Discuss about non probability sampling methods. (5 Marks) [**June 2023**].
3. Explain the report preparation with contents of the report in a clinical trial.(10 marks)[**Nov 2021**].
4. Explain types of clinical study design. (10 marks) [**Jan 2021**].
5. Define histogram, pie charts, and scatter plots. (5 marks) [**Jan 2021**].
6. Describe about contents of a research report . (5 marks) [**Jan 2021**].
7. Outline about the power of a study. (5 marks) [**Jan 2021**].
8. How data can be represented graphically. Explain different graphical representation with suitable example.(10 marks) [**July 2019**].
9. What are case studies . (5 marks) [**July 2019**]
10. Data presentation. (5 marks) [**July 2019**]
11. What is power of test. Mention its significance. (5marks) [**July 2019**].
12. . Null hypothesis. (5marks) [**July 2019**].
13. How reports are prepared in clinical trial. Explain the contents of the report.(10 marks) [**Dec 2019**].
14. Design an experimental protocol to conduct interventional clinical study. .(10 marks) [**Dec 2019**].
15. Explain power of a study.(5 marks) [**Dec 2019**].
16. Explain in detail of various study designs used in epidemiology. .(5 marks) [**Dec 2019**].
17. Describe the needs and classification of research study. (10 marks) [**July 2018**].
18. How will you determine sample size for simple comparative experiment. (5 marks) [**July 2018**].
19. Designing the methodology .(5 marks) [**Jan 2018**]
20. Define histogram, pie charts, and scatter plots. .(5 marks) [**Jan 2018**]
21. Describe the need for sample size calculation in clinical studies. Explain the method of sample size calculation for estimation of mean and comparison of mean.(10 marks) [**July 2017**].
22. Explain type-I and type-II errors . (5 marks) [**July 2017**]
23. Explain various types of observational studies. (5 marks) [**July 2017**]

UNIT II: BIOSTATISTICS

1. What is the level of significance. Explain one-way ANOVA Test. (10 Marks) [**June 2023**]
2. Discuss about the presentation of data. (5 Marks) [**June 2023**].
3. Write a note on scattered plots. (5 Marks) [**June 2023**].
4. Explain on Wilcoxon signed rank and Mann Whitney 'U' test.(5 Marks) [**June 2023**].
5. What are Pearson's and Spearman's correlations. Give its application. (5 Marks) [**June 2023**].

6. Describe statistical methods in epidemiology. (5 Marks) **[June 2023]**.
7. Explain about level of significance and analysis of variance. (10 marks) **[Nov 2021]**
8. Epidemiological methods of study design. (5marks) **[Nov 2021]**
9. Discuss about relative risk and attributable risk. (5marks) **[Nov 2021]**.
10. Explain Wilcoxon's signed rank test and sign test. (5marks) **[Nov 2021]**
11. Explain about measures of central tendency. (5marks) **[Nov 2021]**
12. Summarize on uses of Chi-square (χ^2) test. (5marks) **[Nov 2021]**
13. Epi info. (5marks) **[Nov 2021]**
14. Discuss about presentation of data. (5marks) **[Nov 2021]**
15. Elaborate on various steps involved in testing the significance of single mean and difference between two means (independent samples) in small samples using 't' distribution. (10 marks) **[Jan 2021]**.
16. Define mean and median. (5 marks) **[Jan 2021]**.
17. Explain linear regression. (5 marks) **[Jan 2021]**.
18. Discuss about the relative and attributable risks. (5 marks) **[Jan 2021]**.
19. Write about the application of statistical software in drug research. (5 marks) **[Jan 2021]**.
20. Discuss central tendency distributions. (5marks) **[July 2019]**.
21. Describe non-parametric data. (5marks) **[July 2019]**.
22. Interpretation of correlation co-efficient. (5marks) **[July 2019]**.
23. Discuss the applications of SAS. (5marks) **[July 2019]**.
24. How non-parametric data are analyzed. Explain any one statistical method to analyze non-parametric data. (10 marks) **[Dec 2019]**.
25. Linear regression methods and its significance. (5 marks) **[Dec 2019]**.
26. Explain analysis of variance. (5 marks) **[Dec 2019]**.
27. Explain semi logarithmic plots and scatter plot with examples. (5 marks) **[Dec 2019]**.
28. Explain in detail about central tendency. (5 marks) **[Dec 2019]**.
29. What is hypothesis. How is it can be tested. Explain with suitable example. (10 marks) **[July 2018]**.
30. How standard deviation and standard error mean is calculated. Explain its significance. (10 marks) **[July 2018]**.
31. What is student 't' test. How it has been calculated. (5 marks) **[July 2018]**.
32. Discuss Mann Whitney U test. (5 marks) **[July 2018]**.
33. Confidence interval. (5 marks) **[July 2018]**.
34. Discuss commercially available statistical software. (5 marks) **[July 2018]**.

35. Various steps involved in testing the significance of single mean and difference between two means (independent samples) in small samples using 't' distribution. (10 marks) [**Jan 2018**]
36. Explain statistical methods in epidemiology. (10 marks) [**Jan 2018**]
37. Kruskal-Wallis test. (5 marks) [**Jan 2018**]
38. Differentiate between correlation and regression analysis . (5 marks) [**Jan 2018**]
39. Define range and variation of mean. (5 marks) [**Jan 2018**].
40. One-way analysis of variance. (5 marks) [**Jan 2018**].
41. Interpretation of correlation co-efficient. (5 marks) [**Jan 2018**].
42. Explain the steps involved in hypothesis testing with an example.(10 marks) [**July 2017**].
43. Classify ANOVA and describe the general steps involved in the calculation of one way ANOVA. Mention the important posttests. (10 marks) [**July 2017**].
44. How data distribution in clinical study is analyzed. (5 marks) [**July 2017**].
45. What is chi square test. How it has been done. (5 marks) [**July 2017**].
46. Relative and attributed risk. (5 marks) [**July 2017**].
47. Explain the importance and application of statistical soft wares in pharmacy. (5 marks) [**July 2017**].
48. What are Pearson's and Spearman's correlations. Mention its application. (5 marks) [**July 2017**].

UNIT III: COMPUTER APPLICATIONS IN PHARMACY

1. Explain the role of computers in community pharmacy. (10 Marks) [**June 2023**]
2. Write out the computer system in Hospital pharmacy. (5 Marks) [**June 2023**].
3. Describe use of computers in drug information services. (5 Marks) [**June 2023**].
4. The uses of computers in community pharmacy. .(10 marks) [**Nov 2021**]
5. Explain patient medication profiles and inventory control. .(5marks) [**Nov 2021**]
6. Explain the uses of computers in drug information retrieval and storage. (10 marks) [**Jan 2021**].
7. Write about applications of computer in patient record database management. (5 marks) [**Jan 2021**].
8. Explain the inventory control methods in a hospital pharmacy and available software.(10 marks) [**July 2019**].
9. Application of computers in inventory control. (5 marks) [**Dec 2019**].
10. Computer medication order entry. (5 marks) [Dec **2019**].
11. How computers are applied in recording patient medical profile. (5 marks) [**July 2018**].
12. Describe the applications of computers in community pharmacy. . (5 marks) [**July 2018**].

13. Discuss computerized retrieval. . (5 marks) **[July 2018]**.
14. Explain the use of computers in drug information retrieval and storage.(10 marks)**[Jan 2018]**.
15. How patient medication profile is recorded in the pharmacy and state its importance.(5 marks) **[July 2017]**.



BIOPHARMACEUTICS AND PHARMACOKINETICS
QP CODE: 106340)



UNIT 1. BIOPHARMACEUTICS**I. INTRODUCTION TO BIOPHARMACEUTICS****A. ABSORPTION OF DRUGS FROM GASTROINTESTINAL TRACT.****B. DRUG DISTRIBUTION.****C. DRUG ELIMINATION.**

1. Discuss about renal clearance-5 marks (**June 2023**)
 2. Discuss the different mechanisms involved in gastro intestinal absorption-10marks (**March 2022**)
 3. Explain the physiological barriers affecting drug distribution-10 marks (**July 2022**)
 4. Describe in detail about chemical pathway of drug biotransformation- 10marks (**July 2022**)
 5. Discuss about various physiological barrier for drug distribution-10 marks (**July 2022**)
 7. Explain the various mechanism of drug absorption-10 marks (**July 2022**)
- Discuss glutathione and glucuronic acid conjugation with suitable examples-5 marks (**July 2021**)
13. Differentiate active transport and passive diffusion- 5 marks (**July 2021**)
 14. The importance of volume of distribution-5 marks (**July 2021**)
 15. Outline the physicochemical factors affecting drug absorption-10marks (Nov **2021**)
 16. Describe the phase II biotransformation of drugs. 5 marks (**July 2017**)
 17. What are the dosage forms related factors affecting drug absorption-5 marks (**July 2018**)
 18. Describe some non-renal routes of drug elimination 5 marks (**July 2018**)
 19. Explain the volume of distribution with its significance-5 marks (**July 2018**)
 20. Write about the significance of protein binding-5 marks (**July 2018**)
 21. Describe some non-renal routes of drug elimination 5 marks (**July 2018**)
 22. Describe facilitated diffusion and active transport in drug absorption- 5 marks (**July 2017**)

23. Describe the phase II biotransformation of drugs. 5 marks (July 2017)

2. PHARMACOKINETICS

2. INTRODUCTION TO PHARMACOKINETICS.

A. MATHEMATICAL MODEL

B. DRUG LEVELS IN BLOOD.

C. PHARMACOKINETIC MODEL

D. COMPARTMENT MODELS E. PHARMACOKINETIC STUDY.

1. Explain the pharmacodynamic parameters from Plasma concentration time curve -5 marks (July 2022)
2. Briefly write about IVIVC-5 marks (July 2022)
3. Draw the plasma concentration time profile curve. Describe the different pharmacokinetic and pharmacodynamic parameters-10 marks (Nov 2021)
4. Area under the first movement curve-5 marks (July 2017)
5. Importance of plasma level-time curve-5 marks (July 2017)

UNIT 2.PHARMACOKINETICS 3. ONE COMPARTMENT OPEN MODEL. A. INTRAVENOUS INJECTION (BOLUS) B. INTRAVENOUS INFUSION

1. How will you determine the pharmacokinetic parameters in one compartment open model after intravenous bolus injection-10 marks (March 2022)
2. How to determine absorption rate constant after extra vascular administration in one compartment model-10 marks (March 2022)

UNIT 2 PHARMACOKINETICS

4. MULTICOMPARTMENT MODELS.

A. TWO COMPARTMENT OPEN MODEL.

B. IV BOLUS, IV INFUSION AND ORAL ADMINISTRATION

1. Discuss about Two compartment open model for IV bolus administration -10 marks (June 2023)

2. How to determine absorption rate constant using method of residuals-5 marks (**Jan 2021**)
3. Describe about plasma level – time studies-5 marks (**July 2021**)
4. How to determine elimination rate constant by sigma minus method- 5 marks (**July 2021**)

UNIT 2 PHARMACOKINETICS

5. MULTIPLE – DOSAGE REGIMENS.

A. REPETITIVE INTRAVENOUS INJECTIONS – ONE COMPARTMENT OPEN MODEL

B. REPETITIVE EXTRAVASCULAR DOSING – ONE COMPARTMENT OPEN MODEL

C. MULTIPLE DOSE REGIMEN – TWO COMPARTMENT OPEN MODEL

1. The principle involved in drug accumulation during multiple dosing-5 Marks (**March 2022**)
2. Describe the concept involved in Wagner Nelson method- 5 marks(**Nov 2021**)
3. How do you determine KE using rate of excretion method from urine data-5 marks (**Nov 2021**)
4. How to determine the pharmacokinetic parameters in one component open model after repetitive injection method- 10 marks (**July 2018**)

UNIT 2 PHARMACOKINETICS

6. NON-LINEAR PHARMACOKINETICS.

A. INTRODUCTION

B. FACTORS CAUSING NON-LINEARITY.

C. MICHAELIS-MENTON METHOD OF ESTIMATING PARAMETERS.

1. Mention any two methods for the determination of K_m and V_{max} in Michaelis Menten equation-5 marks(**March 2022**)
2. What are the causes of non-linearity -5 marks (**July 2022**)
3. Explain Michaelis Menten equation. Write the methods used for estimating the nonlinear parameters-10marks (**Nov 2021**)
4. Determination of non-linearity- 5 marks (**Nov 2021**)

UNIT 2.PHARMACOKINETICS**7. NON-COMPARTMENTAL PHARMACOKINETICS.****A. STATISTICAL MOMENT THEORY.****B. MRT FOR VARIOUS COMPARTMENT MODELS.****C. PHYSIOLOGICAL PHARMACOKINETIC MODEL.**

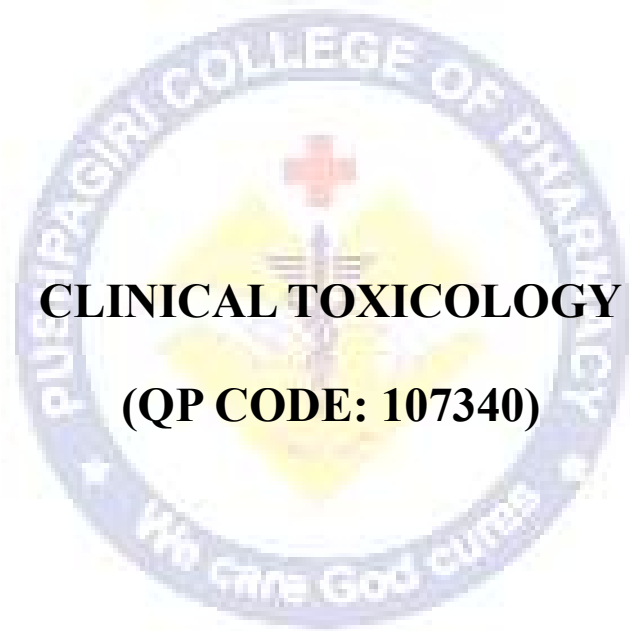
1. Physiological pharmacokinetic model-5 marks (**March 2022**)
2. The merits and demerits of non-compartmental pharmacokinetics-5 marks (**July 2021**)
3. Mamillary model- 5 marks (**July 2021**)
4. Mention the theories of drug dissolution and explain any one of them-5 marks (**July 2021**)
5. What are strategies adopted for transporting drug across blood brain barrier- 5 marks (**July 2021**)
6. How to determine mean resident time in non-compartment model-5 marks (**Nov 2021**)
7. Add a note on statistical moment theory-5 marks (**July 2018**)
8. The concept involved in different compartment models-5 marks (**July 2018**)

UNIT 2.PHARMACOKINETICS**8. BIOAVAILABILITY AND BIOEQUIVALENCE.****A. INTRODUCTION.****B. BIOAVAILABILITY STUDY PROTOCOL.****C. METHODS OF ASSESSMENT OF BIOAVAILABILITY**

1. Explain the protocol for bioequivalence study-10 marks (**June 2023**)
2. Discuss about the Latin square design for cross over bioequivalence study-5 marks (**June 2023**)
3. Differentiate absolute and relative bioavailability-5 marks (**March 2022**)
4. The protocol involved in bioequivalence studies-5 marks (**March 2022**)
5. .Mention the methodology involved in the determination of bioavailability-5 marks (**July 2021**)

6. Mention the pharmacodynamic method involved in the determination of bioavailability-5 marks **(Jan 2021)**
7. How to determine bioavailability through urinary excretion studies- 5 marks **(July 2018)**
8. Discuss in detail about bioavailability study protocol -5 marks **(July 2017)**
9. Methods of assessment of Bioavailability -5 marks **(July 2017)**





CLINICAL TOXICOLOGY
(QP CODE: 107340)

CHAPTER 1: GENERAL PRINCIPLES INVOLVED IN THE MANAGEMENT OF POISONING

1. Discuss various gut decontamination processes in general management of poisoning. – 10 Marks **[June 2023]**
2. Explain toxicokinetic principles in the management of poisoning. 5 Marks **[June 2023]**
17. Discuss the role and procedure of gastric lavage in gut decontamination of poisoning. 10 Marks **[January 2023]**
18. Role of antidotes in the management of poisoning. 5 Marks **[January 2023]**
19. Explain the various gut decontamination process in the management of poisoning with its advantages and disadvantages. 10 Marks **[March 2022]**
20. Discuss in brief the various antidotes with its clinical application. 10 Marks **[March 2022]**
21. Write a note on supportive care in toxicology. 10 Marks **[March 2022]**
22. Discuss various general measures in the management of poisoning relevant to
23. Clinical toxicology. 10 Marks **[July 2022]**
24. Toxicokinetics. 5 Marks **[July 2022]**
25. Brief note on the use of multi dose activated charcoal in the elimination enhancement. 5 Marks **[July 2022]**
26. . Discuss in details about elimination enhancement. 10 Marks **[November 2021]**
27. Write a note on antidotes with examples. 5 Marks **[November 2021]**
28. Describe the role of gut decontamination in management of poisoning. 10 Marks **[July 2021]**
29. Explain in detail about the general principles involved in the management of poisoning. 10 Marks **[January 2021]**
30. Toxicokinetics. 5 Marks **[July 2019]**

CHAPTER 2: CLINICAL SYMPTOMS AND MANAGEMENT OF ACUTE POISONING

31. Explain the management of organophosphate poisoning. 10 Marks **[June 2023]**
32. Discuss toxicity with benzodiazepine and its management. 5 Marks **[June 2023]**
33. Discuss the management of acetaminophen poisoning. 5 Marks **[June 2023]**

34. Discuss Mechanism of Toxicity, Clinical Presentations and Management of Tricyclic and other Antidepressants Poisoning. 10 Marks [**January 2023**]
35. Discuss toxicity with barbiturates and its management. 5 Marks [**January 2023**]
36. Discuss the clinical presentation and mechanism of toxicity of NSAIDs poisoning. 5 Marks [**January 2023**]
37. Explain clinical significance of Rumack-Matthew nomogram in acetaminophen toxicity. 5 Marks [**January 2023**]
38. Describe in details the clinical manifestation and management of acute poisoning with ethanol. 10 Marks [**March 2022**]
39. Radiation poisoning – clinical symptoms and management. 10 Marks [**March 2022**]
40. Radiation poisoning. 5 Marks [**January 2023**]
41. Write down the signs and symptoms of amphetamine poisoning. 10 Marks [**March 2022**]
42. Write down the clinical symptoms and antidotes for pyrethroids. 10 Marks [**March 2022**]
43. Clinical symptoms and management of paracetamol poisoning. 5 Marks [**July 2022**]
44. Clinical signs, symptoms and treatment of organophosphates poisoning. 5 Marks [**July 2022**]
45. Clinical symptoms, complication and management of antidepressant overdose. 5 Marks [**July 2022**]
46. Discuss in details about acute poisoning with NSAIDs. 10 Marks [**November 2021**]
47. Acute barbiturates poisoning and its treatment. 5 Marks [**November 2021**]
48. Clinical symptoms and treatment in petroleum product poisoning. 5 Marks [**November 2021**]
49. Carbamates -clinical symptoms and management of acute poisoning. 5 Marks [**November 2021**]
50. Describe the role of gut decontamination in management of poisoning. 10 Marks [**July 2021**]
51. Explain the clinical manifestations of acute ethanol poisoning. 5 Marks [**July 2021**]
52. Inorganic acid poisoning. 5 Marks [**July 2021**]
53. Explain about management of carbamate poisoning. 5 Marks [**July 2021**]
54. Explain the clinical features of amphetamine abuse. 5 Marks [**July 2021**]
55. Management of barbiturate poisoning. 5 Marks [**July 2021**]
56. Explain the clinical features and management of following. 10 Marks [**July 2019**]
 - a. Opiates over dose Pyrethroid poisoning.

57. Explain the clinical features and management of paracetamol poisoning. 10 Marks
[July 2019]
58. Non-steroidal anti-inflammatory drugs poisoning. 5 Marks [July 2019]
59. Explain the effect of radiation. 5 Marks [July 2019]
60. Explain the clinical features and management of antidepressant poisoning. 5 Marks
61. [July 2019]

CHAPTER 3: CLINICAL SYMPTOMS AND MANAGEMENT OF CHRONIC POISONING

8. Enlist the clinical sign and symptoms of lead poisoning. Explain its management. 10 Marks [June 2023]
9. Explain the management of lead poisoning with encephalopathy. 5 Marks [January 2023]
10. Clinical symptoms and management of chronic arsenic poisoning. 5 Marks [July 2022]
11. Short note on iron poisoning. 5 Marks [November 2021]
12. Explain the clinical manifestations and management of arsenic poisoning. 10 Marks
[July 2021]
13. Describe the management of copper poisoning 5 Marks [July 2021]
14. Explain the clinical features and management of following. 10 Marks [July 2019]
- a. Iron over dose Copper sulphate poisoning

CHAPTER 4: VENOMOUS SNAKE BITES

7. Enlist the indications for requirement of antivenom administration in haemotoxic snakes. 5 Marks [June 2023]
8. Explain the sign and symptoms of a cobra bite. Enlist complications of administration of anti-venom. 10 Marks [January 2023]
9. Describe the general management, early manifestations and complications of snake bite injuries. 10 Marks [March 2022]
10. Explain the clinical effects of venoms. 10 Marks [March 2022]
11. What are the different families of venomous snakes 5 Marks [July 2021]
12. Enlist clinical features and management of snake bite poisoning. 5 Marks [July 2019]

CHAPTER 5: PLANT POISONING

6. Mushroom poisoning with examples. 5 Marks [June 2023]

7. Clinical symptoms and management of mycotoxins. 10 Marks [**March 2022**]
8. Clinical symptoms and management of plant poisoning. 5 Marks [**July 2022**]
9. Explain the clinical symptoms and management of mycotoxins. 5 Marks [**July 2019**]
10. Explain the clinical features and management of mushroom poisoning. 5 Marks [**July 2019**]

CHAPTER 6: FOOD POISONINGS

3. Food poisoning. 5 Marks [**January 2023**]
4. Discuss the signs, symptoms, diagnosis and treatment of food poisoning. 10 Marks [**July 2022**]

CHAPTER 7: ENVENOMATIONS

2. Enumerate the clinical features of arthropod bites and treatment of anaphylaxis. 5 Marks [**November 2021**]

CHAPTER 8: SUBSTANCE ABUSE

1. Discuss mechanism of toxicity, clinical presentation and treatment of opioid poisoning. 5 Marks [**June 2023**]
3. Explain the complications of amphetamine abuse. 5 Marks [**June 2023**]
4. Discuss the mechanism of toxicity and clinical presentation of cannabis abuse. 5 Marks [**January 2023**]
5. Write down the signs and symptoms of tobacco abuse and its treatment of dependence. 10 Marks [**March 2022**]
6. Discuss in details about signs and symptoms of hallucinogen abuse and its treatment. 10 Marks [**July 2022**]
7. Signs and symptoms of substance abuse and treatment of dependence of tobacco. 5 Marks [**July 2022**]
8. Discuss in detail the signs, symptoms and treatment of cannabis dependence in toxicological practice. 10 Marks [**November 2021**]
9. Management of opioid poisoning. 5 Marks [**November 2021**]
10. Clinical symptoms and management of LSD abuse. 5 Marks [**November 2021**]
11. Hallucinogens 5 Marks [**July 2021**]
12. Explain the clinical signs and symptoms of LSD abuse and its management. 5 Marks [**July 2019**]

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



FIFTH YEAR PHARM D
QUESTION BANK



CLINICAL RESEARCH
(Q.P. Code: 501326)

CHAPTER I: DRUG DEVELOPMENT PROCESS

1. Explain about drug characterization in drug development process. - 5 Mark **[June 2023]**.
2. Explain in detail the formulation development process during drug discovery and lead optimization. - 10 Mark **[November 2022]**.
3. Discuss in detail the various approaches to drug discovery. - 10 Mark **[July 2022]**.
4. Explain the procedure for submission of investigational new drug application. - 5 Mark **[July 2022]**.
5. Write in detail about new drug development process. - 10 Mark **[February 2022]**.
6. Investigational new drug application. - 5 Mark **[October 2021]**.
7. Define investigational new drug application and its procedure for submission. - 10 Mark **[May 2021]**.
8. What are the different stages of drug development process. - 10 Mark **[May 2021]**.
9. Explain the process of Investigational New Drug Application (INDA). - 10 Mark **[November 2020]**.
10. Pharmacological approaches to drug discovery. - 5 Mark **[November 2020]**.
11. What are preclinical studies. Write the objectives of preclinical studies. - 5 Mark **[November 2020]**.
12. Lead optimization during the drug development process. - 5 Mark **[June 2019]**.
13. Explain the importance of pharmacological information in drug discovery. - 5 Mark **[June 2018]**.
14. Preclinical testing in clinical research. - 5 Mark **[June 2018]**.
15. Explain about pre-clinical development of drugs. - 10 Mark **[December 2018]**.
16. What is investigational new drug (IND). What are the contents and format of IND application. - 5 Mark **[December 2018]**.

CHAPTER II: CLINICAL DEVELOPMENT OF DRUG

1. Explain in detail various phases of clinical trials. - 10 Mark **(November 2022), (February 2022), [June 2019]**.
2. Why randomization is important in clinical research. - 5 Mark **[October 2021]**.
3. Differentiate between double- blind clinical trials and open labeled clinical trials. - 5 Mark **[October 2021]**.
4. Define clinical trial and its various phases. - 5 Mark **[May 2021]**.
5. Objectives of phase I and phase II studies. - 5 Mark **[June 2019]**.

6. Explain various methods of post marketing surveillance. - 5 Mark **[July 2022]**.
7. Explain the methods and benefits of post marketing trial. - 5 Mark **[February 2022]**.
8. What are the essential documents for the conducting of clinical trials and its purpose. - 10 Mark **[June 2018]**.
9. What are the different methods of post marketing surveillance. - 10 Mark **[October 2021]**.
10. Discuss the importance of post marketing surveillance (PMS) studies. Explain different methods of PMS studies with their advantages and disadvantages. - 10 Mark **[December 2018]**.
11. Active surveillance studies with its merits and demerits. - 5 Mark **[June 2019]**.
12. What are the advantages and disadvantage of active surveillance studies. - 5 Mark **[December 2019]**.
13. Explain briefly about Abbreviated New Drug Application (ANDA) submission. - 10 Mark **[June 2023]**.
14. What are the contents of an Abbreviated New Drug Application (ANDA). - 5 Mark **[December 2019]**.
15. Discuss about CDSCO guidelines. - 5 Mark **[November 2022]**.
16. Principles of ICH-GCP guidelines. - 5 Mark **[November 2022]**, **[December 2018]**.
17. Explain in detail about ICH guidelines. - 10 Mark **[July 2022]**, **[February 2022]**.
18. Explain the ethical principles as per International Council for Harmonization for technical requirements for pharmaceuticals for human use (ICH). - 10 Mark **[June 2019]**.
19. Write the functions of central drugs standard control organization (CDSCO) in the conduct of a clinical trial. - 5 Mark **[December 2019]**.
20. GCP. - 5 Mark **[June 2018]**.
21. Explain the qualification of an investigator and the roles and responsibilities of investigator as per ICH-GCP. - 10 Mark **[December 2018]**.
22. Explain the guidelines of Central Drug Control and Standard Organization in Good Clinical Practice. - 5 Mark **[February 2022]**.
23. Briefly explain the ICH guidelines. - 5 Mark **[June 2018]**.
24. What are the challenges in implementing ethical guidelines for conducting clinical trials in India. - 5 Mark **[June 2019]**.
25. Challenges in the implementation of ICH-Good Clinical Practice guidelines. - 5 Mark **[July 2022]**.
26. Challenges faced by investigator while conducting clinical trials. - 5 Mark **[June 2018]**.

27. Explain the ethical guidelines in clinical research. - 5 Mark [November 2022], [February 2022].
28. What are the ethical guidelines in clinical research. - 5 Mark [May 2021].
29. Explain composition and responsibilities of IRB. - 5 Mark [June 2023].
30. Explain Institutional Review Board (IRB). - 5 Mark [November 2022], [July 2022].
31. Explain composition and responsibilities of Institutional Ethical Committee. - 5 Mark [February 2022].
32. Write a brief note on Institutional Human Ethical Committee and its composition. - 5 Mark [May 2021].
33. Nuremberg code. - 5 Mark [November 2020], [December 2018].
34. Helsinki declaration. - 5 Mark [June 2019].
35. Thalidomide disaster. - 5 Mark [December 2019].
36. Explain about regulatory environment in India. - 5 Mark [June 2023].
37. Discuss the regulatory environment in USA. - 5 Mark [November 2022].
38. Discuss in detail the overview of regulatory environment in Europe. - 10 Mark [July 2022].
39. Enumerate in detail about overview of regulatory environment in India. - 10 Mark [February 2022].
40. Discuss in detail the overview of regulatory environment in Europe and USA. - 10 Mark [October 2021].
41. Responsibilities of auditor and clinical research associate. - 5 Mark [November 2022].
42. Write the roles and responsibilities of contract research coordinators in clinical trial. - 5 Mark [July 2022].
43. Discuss the roles and responsibilities of auditors in clinical research. - 5 Mark [July 2022], [December 2019].
44. What are the responsibilities of clinical research associate. - 5 Mark [February 2022].
45. Role and responsibility of clinical research coordinator. - 5 Mark [October 2021].
46. Purpose of an audit in clinical trial. - 5 Mark [October 2021].
47. Role and responsibility of clinical research coordinator. - 5 Mark [October 2021].
48. Describe about components of Investigators brochure. - 5 Mark [May 2021], [June 2018].
49. Functions of Sponsor in Clinical trial. - 5 Mark [November 2020].
50. Different types of audits in clinical trials. - 5 Mark [November 2020].
51. The roles and responsibilities of an investigator in clinical trials. - 5 Mark [June 2019].
52. Clinical Trial Registry in India (CTRI). - 5 Mark [June 2019].

53. List out the various activities of Clinical Research Associate (CRA) while monitoring a clinical trial. - 5 Mark [**December 2019**].
54. Discuss about designing of protocol for clinical study. - 10 Mark [**June 2023**].
55. Enumerate designing of case report form (CRF) with a suitable example. - 5 Mark [**November 2022**].
56. Discuss briefly about designing of clinical study documents. - 5 Mark [**February 2022**].
57. Case report form. - 5 Mark [**October 2021**]
58. What are the sections to be considered while designing a case report form. - 5 Mark [**June 2019**].
59. Different sections of case report form with its importance in data management. - 5 Mark [**December 2018**].
60. Explain informed consent process. - 5 Mark [**June 2023**], [**November 2022**], [**July 2022**], [**May 2021**].
61. Significance of informed patient consent. - 5 Mark [**February 2022**].
62. Discuss on informed consent process for a clinical trial involving vulnerable population. - 10 Mark [**December 2019**].
63. What is informed consent. Explain content of informed consent as per regulatory authorities in clinical trials. - 10 Mark [**October 2021**].
64. What is the importance of an informed consent in clinical trial. Explain on designing of an informed consent form. - 10 Mark [**June 2019**].
65. The roles of investigator during the informed consent process. - 5 Mark [**November 2020**].
66. Write a note on Quality Assurance (QA) and Quality Control (QC) in clinical data management. - 5 Mark [**June 2023**].
67. Discuss electronic data processing. - 5 Mark [**June 2023**].
68. Describe in detail the various data management and its components. - 5 Mark [**May 2021**].
69. Different components of data management in clinical trials. - 5 Mark [**November 2020**].
70. Components of data management in clinical trials. - 5 Mark [**December 2018**].
71. Explain Safety monitoring in clinical trials. - 5 Mark [**June 2023**], [**October 2021**], [**November 2020**], [**June 2018**].
72. Explain safety monitoring procedure in clinical trials. - 5 Mark [**July 2022**].
73. Impartial witness. - 5 Mark [**October 2021**].

**PHARMACOEPIDEMOLOGY AND
PHARMACOECONOMICS**

(QPCODE: 502326)



UNIT-I: PHARMACOEPIDEMOLOGY**a) Definition and scope**

1. Need and applications of pharmacoepidemiology **(05 marks) (November 2022), (July 2022), (November 2020), (December 2019).**

b) Measurement of outcomes in pharmacoepidemiology

1. Prevalence and incidence with an example **(05 marks) (June 2023).**
2. Defined Daily Dose (DDD) and Prescribed Daily Dose (PDD) **(05 marks) (June 2023).**
3. Measurement of medication adherence **(05 marks) (June 2023).**
4. Point and period prevalence with an example **(05 marks) (November 2022).**
5. Uses and advantages of defined daily dose **(05 marks) (November 2022).**
6. Explain about prevalence and incidence **(05 marks) (July 2022).**
7. What is medication adherence and explain the measurement of adherence **(05 marks) (February 2022).**
8. Prescribed daily dose with suitable example **(05 marks) (February 2022).**
9. Explain various outcome measures used for assessing the measurement of outcome in pharmacoepidemiology **(05 marks) (February 2022).**
10. Medication adherence measurements **(05 marks) (October 2021).**
11. Advantages and disadvantages of defined daily dose **(05 marks) (October 2021).**
12. Define medication adherence. Explain the commonly used intervention strategies to improve medication adherence **(10 marks) (May 2021).**
13. Define prevalence and incidence with an example **(05 marks) (May 2021)**
14. Define daily dose with suitable example **(05 marks) (May 2021).**
15. Define and explain prescribed daily dose with suitable example **(05 marks) (November 2020).**
16. Discuss various methods of medication adherence measurement **(10 marks) (December 2019).**
17. Incidence and incidence rate with suitable example **(05 marks) (December 2019), (December 2018)**
18. Drug use measures in pharmacoepidemiology study **((05 marks) (December 2019).**
19. Enlist various barriers of medication adherence and explain how to overcome the Barriers **(05 marks) (June 2019).**
20. Define medication adherence. Explain the commonly used intervention strategies to

improve medication adherence **(10 marks) (December 2018)**.

21. Explain defined daily dose and prescribed daily dose with suitable examples **(05 marks) (December 2018)**.

c) Concept of risk in pharmacoepidemiology

1. Relative risks and time-risk relationship **(05 marks) (July 2022)**.
2. Define risk and enlist the various factors influencing the same. Explain relative risk and odd's ratio with suitable examples **(10 marks) (May 2021)**.
3. Define risk and enlist the various factors influencing the same. Explain relative risk and odd's ratio with suitable examples **(10 marks) (November 2020)**.
4. Explain the importance of the concept risk measurement in pharmacoepidemiology. Explain attributable-risk and relative risk with suitable examples **(10 marks) (December 2019)**.
5. Explain time-risk relationship and odds ratio with suitable examples **(05 marks) (June 2019)**.

d) Pharmacoepidemiological methods

1. Explain any two analytical observational study design in pharmacoepidemiology **(10 marks) (June 2023)**.
2. Describe cost-benefit analysis and cost utility analysis **(10 marks) (June 2023)**.
3. Define Record Linkage System (RLS) and explain different types of RLS **(10 marks) (June 2023)**.
4. Spontaneous reporting systems **(05 marks) (June 2023)**.
5. What is cohort study. Explain the steps in conducting a cohort study **(10 marks) (November 2022)**
6. Explain spontaneous reporting systems in detail **(10 marks) (November 2022)**.
7. Information flow in record linkage system **(05 marks) (November 2022)**
8. What is a cohort study. Explain the different types of cohort studies citing an example for each **(10 marks) (July 2022)**.
9. Define Drug Utilization Review (DUR). Explain the steps involved in establishing a DUR program in a hospital setup **(10 marks) (February 2022)**.
10. Classify various study designs in pharmacoepidemiology. Explain any two-study design with suitable example **(10 marks) (February 2022)**.
11. Discuss briefly on case reports and case series **(05 marks) (February 2022)**.
12. Strengths and weakness of prescription-event monitoring **(05 marks) (July 2022)**.

13. Matching in case-control study design **(05 marks) (July 2022)**.
14. Strengths and limitations of cross-sectional studies **(05 marks) (July 2022)**.
15. Explain cross sectional and case control studies with example **(10 marks) (October 2021)**.
16. Define Record Linkage System (RLS) and explain different types of RLS **(10 marks) (October2021)**.
17. Case reports and case series **(05 marks) (October 2021)**.
18. Limitations of spontaneous reporting systems **(05 marks) (October 2021)**.
19. Need and applications of spontaneous reporting system in pharmacoepidemiology studies **(05 marks) (May 2021)**.
20. Record linkage system **(05 marks) (May 2021)**
21. Give strengths and weakness of meta-analysis **(05 marks) (May 2021)**.
22. Define Record Linkage System (RLS) and explain different types of RLS **(10 marks) (November2020)**.
23. Discuss the steps involved in performing cohort study with example **(05 marks) (November2020)**.
24. Explain the method of prescription event monitoring (PEM) in general medicalpractice **(05 marks) (November 2020)**.
25. Define drug utilization review (DUR). Explain the steps involved in establishing aDUR program in a hospital setup **(10 marks) (June 2019)**.
26. Explain the need and applications of spontaneous reporting system in pharmacoepidemiology studies **(05 marks) (June 2019)**.
27. Define and explain case reports and case series **(05 marks) (June 2019)**.
28. Classify epidemiological study designs. Explain case control study with suitable example **(05 marks) (June 2019)**.
29. What is Prescription Event Monitoring (PEM) and modified prescription eventmonitoring. Enlist its application **(05 marks) (June 2019)**.
30. Drug utilization evaluation steps and its application **(05 marks) (December 2019)**
31. Discuss case control and case cohort studies with examples **(05 marks) (December 2019)**
32. Cost utility analysis with an example **(05 marks) (December 2019)**.
33. Classify different pharmacoepidemiological study designs. Explain any two designs indetail **(10 marks) (December 2018)**.
34. Define record linkage system (RLS). Explain the information flow in RLS **(05 marks) (December2018)**.

35. Explain the step to perform survey of drug use in pharmacoepidemiology. Enlist its strengths and limitations **(05 marks) (December 2018)**.

e) Sources of data for pharmacoepidemiological studies

1. Automated data systems **(05 marks) (June 2023)**.
2. Ad-Hoc data sources available for pharmacoepidemiological studies **(05 marks) (November 2022)**.
3. What are automated data systems. Explain the different types of automated data systems used in pharmacoepidemiology **(10 marks) (July 2022)**.
4. Ad hoc data sources **(05 marks) (July 2022)**.
5. Benefits of automated databases in pharmacoepidemiological research **(05 marks) (February 2022)**.
6. Ad hoc data sources in pharmacoepidemiological studies **(05 marks) (December 2019)**.
7. What is automated data systems. Explain the different types of automated data systems used in pharmacoepidemiology **(10 marks) (June 2019)**.
8. Explain Ad-Hoc data sources available for pharmacoepidemiological studies **(05 marks) (December 2018)**.

f) Selected special applications of pharmacoepidemiology

1. Role of pharmacoepidemiology in assessing vaccine safety **(05 marks) (June 2023)**.
2. Drug-induced birth defects **(05 marks) (November 2022)**
3. Significance of hospital pharmacoepidemiology **(05 marks) (November 2022), (December 2018)**.
4. Drug induced birth defects **(05 marks) (February 2022)**.
5. Risk management in pharmacoepidemiology **(05 marks) (October 2021)**.
6. Enlist various methodological problems of hospital pharmacoepidemiological studies **(05 marks) (November 2022)**.
7. Sources of data for pharmacoepidemiological studies in hospital **(05 marks) (October 2021)**.
8. Importance of vaccine safety studies **(05 marks) (May 2021)**
9. Explain various clinical problems in drug-induced birth defect studies **(05 marks) (December 2018)**.

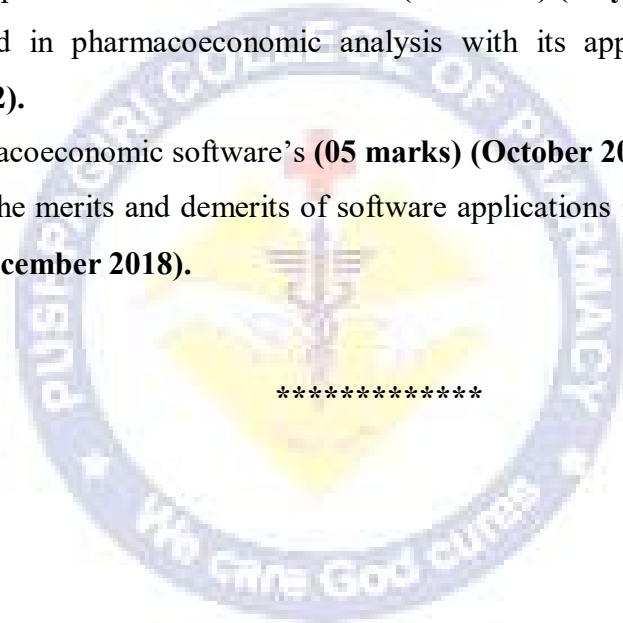
UNIT- II: PHARMACOECONOMICS:**a) Pharmacoeconomic evaluation**

1. Define pharmacoeconomics. Explain cost minimization analysis citing an example **(10 marks) (November 2022)**.
2. Explain any two pharmacoeconomic analysis **(10 marks (July 2022))**.
3. Types of costs in pharmacoeconomics **(05 marks) (July 2022)**.
4. Give three main differences between cost-minimization analysis and cost-benefit analysis. Outline the applications for both with suitable examples **(10 marks (February 2022))**.
5. Direct medical and direct nonmedical costs with an example **(05 marks) (February 2022)**.
6. Explain how pharmacoeconomic studies categories costs and describe the cost effectiveness analysis **(10 marks (October 2021))**.
7. Importance of pharmacoeconomics in hospital formulary decision making **(05 marks) (October 2021)**.
8. Describe the cost-effective analysis with suitable example. Discuss briefly on its applications, advantages and disadvantages **(10 marks (May 2021))**.
9. Role of pharmacoeconomics in formulary management **(05 marks) (May 2021)**.
10. Economic, Clinical and Humanistic Outcomes (ECHO) model in pharmacoeconomics **(05 marks) (May 2021)**.
11. Define and classify pharmacoeconomic evaluation. Describe the steps involved in conducting a pharmacoeconomic study **(10 marks (November 2020))**.
12. Explain the role of pharmacoeconomics in formulary management decisions **(05 marks) (November 2020)**.
13. Discuss the different methods of presenting cost-effective results **(05 marks) (November 2020)**.
14. Explain direct medical and direct nonmedical costs with an example **(05 marks) (November 2020)**.
15. Describe the cost-effective analysis with suitable example. Discuss briefly on its applications, advantages and disadvantages **(10 marks (June 2019))**.
16. Enlist the difference between the four most common type of pharmacoeconomics studies **(05 marks) (June 2019)**.

17. Define and classify pharmacoeconomics. Explain various steps involved for conducting pharmacoeconomic evaluation with suitable example **(10 marks (December 2019))**.
18. Define the term pharmacoeconomics. Discuss cost-utility and cost benefit analysis**(10 marks (December 2018))**.

UNIT - III: APPLICATIONS OF PHARMACOECONOMICS

1. Software's used in pharmacoeconomics **(05 marks) (June 2023)**.
2. Merits and demerits of software applications in pharmacoeconomics **(05 marks) (November 2022)**.
3. Applications of pharmacoeconomic software's **(05 marks) (July 2022)**.
4. Software's used in pharmacoeconomic analysis with its applications **(05 marks) (February 2022)**.
5. Types of pharmacoeconomic software's **(05 marks) (October 2021)**.
6. Explain about the merits and demerits of software applications in pharmacoeconomics **(05 marks) (December 2018)**.



**CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING
(QP CODE:503326)**



CHAPTER 1 : INTRODUCTION TO CLINICAL PHARMACOKINETICS.

1. Explain the difference between traditional pharmacokinetics and population pharmacokinetics.(5 marks) [**June 2023**].
2. Explain the basic principles of clinical pharmacokinetics. (5 marks) [**Feb 2022**].
3. Explain the relationship between dose and pharmacological effect of a drug.(5 marks) [**Oct 2021**].
4. Give five important applications of pharmacokinetic in a clinical setting.(5 marks) [**May 2021**].
5. Explain about the maintenance dose with examples.(5 marks) [**Nov 2020**].
6. Define the term nomogram and describe the various nomograms used in clinical practice.(5 marks) [**Nov 2020**].
7. Applications of pharmacokinetic in clinical setting.(5 marks) [**June 2018**].
8. Plot a graph for plasma drug concentration vs time profile. Explain the key of the effectiveness.(5marks)[**Dec 2018**].

CHAPTER 2: DESIGN OF DOSAGE REGIMENS

1. Explain the various factors considered in the design of dosage regimen for geriatric and obese patients.(10 marks) [**June 2023**].
2. Explain the relationship between dose and duration of activity of a drug.(5 marks) [**June 2023**].
3. Define nomograms. Explain their application in pharmacokinetic studies with examples. Add a note on their merits and demerits.(10 marks) [**Nov 2022**]
4. Explain in detail the general approaches for dosage adjustment in renal diseases. .(10 marks) [**Nov 2022**]
5. Explain dosage adjustment in paediatric patients. .(5marks) [**Nov 2022**]
6. Discuss the factors to be considered during the design of dosage regimen. .(5 marks) [**Nov 2022**].
7. Explain in detail about the determination of dose and dosing interval of a drug.(5 marks) [**July 2022**].
8. Discuss about several methods used to design a dosage regimen.(10 marks) [**Feb 2022**].
9. Different types of intravenous to per-oral conversion of therapy.(5 marks) [**Feb 2022**].
10. Enumerate and explain the various factors in individualizing drug dosage regimen.(10 marks) [**Oct 2021**].
11. Enumerate the factors involved in the calculation of drug dose in paediatric patients.(5marks) [**Oct 2021**].
12. Discuss on altered pharmacokinetics in pediatrics.(10 marks) [**May 2021**].

13. Explain in detail about the pharmacokinetic variations in renal failure and method of assessing the degree of failure and adjusting the dosage regimens.(10 marks) [**May 2021**].
14. .Dosing with feedback.(5 marks) [**May 2021**].
15. Altered pharmacokinetics in geriatrics.(5 marks) [**May 2021**].
16. Explain the factors to be considered for individualizing the dosage regimen.(5 marks) [**Nov 2020**].
17. Explain drug dosage adjustment in paediatric patients. (5 marks) [**June 2019**].
18. Explain dosage regimen design.(5 marks) [**June 2019**].
19. Explain role of nomograms and tabulation in designing the dosage regimen.(10 marks) [**Dec 2019**].
20. Drug dosing obese patients.(5 marks) [**Dec 2019**].
21. Conversion of intravenous to oral dosing.(5 marks) [**Dec 2019**].
22. Nomogram .(5 marks) [**June 2018**]
23. Altered pharmacokinetics and paediatrics. .(5 marks) [**June 2018**].
24. How to convert intravenous dosing to oral dosing. .(5 marks) [**June 2018**].
25. Explain how to convert intravenous dosing to oral dosing.(5 marks) [**Dec 2018**].
26. What are the factors to be considered while designing a dosage regimen.(5 marks) [**Dec2018**].
27. Explain individualization of drug dosage regimen.(10 marks) [**June 2017**].
28. Drug dosing elderly patients. (5 marks) [**June 2017**].
29. Determination of dose and dosing interval. (5 marks) [**June 2017**].
30. Adaptive method. (5 marks) [**June 2017**].
31. Nomograms. (5 marks) [**June 2017**].
32. Drug dosing in pediatric patients. (5 marks) [**Dec 2017**].
33. Factors effecting individualization. (5 marks) [**Dec 2017**].
34. Tabulations in designing of regimen. . (5 marks) [**Dec 2017**].
35. Dosing with feed back. (5 marks) [**Dec 2017**].

CHAPTER 3 : PHARMACOKINETICS OF DRUG INTERACTION

1. Explain the influence of drug interaction on drug metabolism with respect to enzyme induction and enzyme inhibition. .(5 marks) [**June 2023**].
2. Define and explain pharmacokinetic drug interactions with examples.(5 marks) [**Nov 2022**].
3. Describe the role of cytochrome P-450 enzymes in drug interactions. Add a note with suitable examples and their clinical significance (5 marks) [**July 2022**].
4. Explain Pharmacokinetic drug interactions with example.(5 marks) [**July 2022**].

5. Explain in detail about mechanism of drug interactions with suitable examples.(10 marks) **[May 2021]**.
6. Explain the processes of drug interactions.(5 marks) **[Nov 2020]**.
7. Explain absorption interactions with examples.(5marks) **[June 2019]**.
8. .Explain the effects of enzyme induction and enzyme inhibition.(5marks) **[June 2019]**.
9. Drug induction.(5 marks) **[Dec 2019]**.
10. Pharmacokinetic interaction.(5 marks) **[Dec2019]**.
11. Explain in detail about pharmacokinetic drug –drug Interactions.(10 marks) **[June 2018]**.
12. Drugs to cause clinically significant hepatic dysfunctions.(5 marks) **[June 2018]**.
13. Enumerate and discuss the differences between pharmacokinetic and pharmacodynamic drug interactions.(10 marks) **[Dec 2018]**.
14. Drug inhibition.(5 marks) **[June 2017]**.
15. Explain pharmacokinetic interactions with example.(10 marks) **[Dec 2017]**.

CHAPTER 4: THERAPEUTIC DRUG MONITORING

1. Explain in detail about the pharmacokinetic/pharmacodynamic correlation in drug therapy.(10 marks) **[June 2023]**.
2. .Explain about TDM of phenytoin.(5 marks) **[June 2023]**.
3. Explain why TDM for digoxin is necessary.(5 marks) **[Nov 2022]**.
4. Explain the protocol for therapeutic drug monitoring of a drug.(5 marks) **[Nov 2022]**.
5. Explain the necessity and process of TDM in patients receiving lithium and methotrexate.(10 marks) **[July 2022]**.
6. Define therapeutic drug monitoring. Discuss various steps and pharmacokinetic evaluation in TDM process.(10 marks) **[Feb 2022]**.
7. Limitation of TDM.(5 marks) **[Feb 2022]**.
8. Define TDM. Discuss the indications for TDM of drugs.(5 marks) **[Oct 2021]**.
9. Explain the limitations of TDM.(5 marks) **[May 2021]**.
10. Explain the objectives and indications for TDM.(5 marks) **[May 2021]**.
11. Discuss about the TDM of drugs used in organ transplantations and cardiovascular disease.(10 marks) **[Nov 2020]**.
12. Define therapeutic drug monitoring and explain when TDM is necessary and when it is not necessary.(5 marks) **[Nov 2020]**.
13. Mention the process of adaptive dosing with feedback and describe the advantages of this method over conventional therapeutic drug monitoring.(10 marks) **[June 2019]**.

14. Explain direct and indirect link models for pharmacokinetic and pharmacodynamic correlation.(10 marks)[**June 2019**].
15. Explain TDM of lithium and theophylline.(5 marks) [**June 2019**].
16. Enlist different indications for therapeutic drug monitoring and explain general protocol for TDM.(10 marks) [**Dec 2019**].
17. Explain the protocol for therapeutic drug monitoring and add a note on importance of biliary clearance of a drug.(10 marks) [**June 2018**].
18. TDM of valproate.(5 marks) [**June 2018**].
19. Therapeutic drug monitoring of digoxine. .(5 marks) [**June 2018**].
20. Discuss about the protocol for therapeutic drug monitoring.(10 marks) [**Dec 2018**].
21. Which drug requires therapeutic drug monitoring? Give examples with respect to different disease conditions. (5 marks) [**Dec 2018**].
22. Pharmacokinetic and pharmacodynamic correlation. (5 marks) [**Dec 2018**].
23. Explain direct and indirect link models for pharmacokinetic and pharmacodynamics correlation.(10 marks) [**June 2017**].
24. TDM for phenytoin.(5 marks) [**June 2017**].
25. Explain therapeutic drug monitoring for lithium, theophylline and cyclosporine.(10 marks) [**Dec 2017**].

CHAPTER 5: DOSAGE ADJUSTMENT IN RENAL AND HEPATIC DISEASE.

1. Enumerate various causes for renal impairment. Discuss in detail about the pharmacokinetic considerations in the renal failure patients.(10 marks) [**June 2023**].
2. How do you adjust dosage regimen in renal failure patients based on elimination half-life of drug. (5 marks) [**June 2023**].
3. Describe the methods of measurement of GFR and their significance. (5 marks) [**June 2023**].
4. Discuss the effect of hepatic diseases on pharmacokinetics of a drug.(5 marks) [**Nov 2022**].
5. How is Glomerular Filtration Rate (GFR) determined.(5 marks) [**Nov 2022**].
6. Explain in detail about the different methods of extracorporeal removal of drugs.(10 marks) [**July 2022**].
7. Explain the methods of determining creatinine clearance.(5 marks) [**July 2022**].
8. List various formulae for measurement of glomerular filtration rate. (5 marks) [**July 2022**].
9. Dosage adjustment in renal diseases. (5 marks) [**July 2022**].
10. Explain altered pharmacokinetics in renal failure in detail. (10 marks) [**Feb 2022**].
11. Renal impairments.(5 marks) [**Feb 2022**].

12. Various methods for extra corporeal removal of drugs.(5 marks) [**Feb 2022**].
 13. Discuss various markers used in the measurement of glomerular filtration rate along with their advantages and disadvantages. Enumerate the various formulae used for the measurement of creatinine clearance.(10 marks) [**Oct 2021**].
 14. Explain the effect of inhibition of biliary excretion of drugs and list out the drug interactions which influence the biliary excretion.(5 marks) [**Oct 2021**].
 15. Explain the various pharmacokinetic changes observed in the renally impaired patients.(5 marks) [**Oct 2021**].
 16. Explain the methods of extracorporeal removal of drugs.(5 marks) [**May 2021**].
 17. Explain effect of Hepatic disease on Pharmacokinetics.(5 marks) [**May 2021**].
 18. Discuss in detail about dose adjustment in renal failure.(10 marks) [**Nov 2020**].
 19. Explain the procedure to calculate creatinine clearance.(5 marks) [**Nov 2020**].
 20. Explain the process of extracorporeal removal of drugs.(10marks) [**June 2019**].
 21. Explain dosage adjustment in renal failure.(5 marks) [**June 2019**].
 22. Dosage adjustment in uremic patients.(5 marks) [**Dec 2019**].
 23. Determination of creatinine clearance.(5 marks) [**Dec 2019**].
 24. Discuss about the various approaches for dose adjustments for renal failure patients.(10 marks) [**June 2018**].
 25. Explain the altered pharmacokinetics in renal failure.(10 marks) [**Dec 2018**].
 26. Write about biliary excretion of drugs and the consequences of its inhibition.(5 marks) [**Dec 2018**].
 27. Explain general approaches for dosage adjustment in renal and hepatic disease.(10 marks) [**June 2017**].
 28. Extracorporeal removal of drugs.(5 marks) [**June 2017**].
 29. Measurement of creatinine clearance. (5 marks) [**Dec 2017**].
 30. Pharmacokinetic role in hepatic dose adjustment. (5 marks) [**Dec 2017**].
 31. Inhibition of biliary excretion. (5 marks) [**Dec 2017**].
- CHAPTER 6: POPULATION PHARMACOKINETICS.**
1. Describe about Bayesian theory.(5 marks) [**June 2023**].
 2. Describe Bayesian theory . (5marks) [**July 2022**]
 3. Describe how population pharmacokinetic data analysis is carried out. (5marks) [**July 2022**]
 4. Population pharmacokinetics used NONMEM.(5 marks) [**Feb 2022**].
 5. Discuss the analysis of population pharmacokinetic data. .(5 marks) [**Oct 2021**].

6. Discuss NONMEM method.(5 marks) [**Nov 2022**].
7. What are the limitations of population pharmacokinetic approach.(5 marks) [**Oct 2021**].
8. Discuss about “Population Pharmacokinetics” and write any five advantages of this analysis.(5 marks) [**Nov 2020**].
9. Explain nonlinear mixed effect model for population pharmacokinetic data analysis.(5 marks) [**June 2019**].
10. Population pharmacokinetics.(5 marks) [**Dec 2019**].
11. Explain Bayesian theory.(5 marks) [**Dec 2019**].
12. Explain Bayesian theory for population pharmacokinetics.(10marks) [**Dec 2017**].

CHAPTER 7: PHARMACOGENETICS

1. Describe the role of genetic polymorphism in drug targets.(5 marks) [**June 2023**].
2. Discuss the importance of genetic polymorphism of cytochrome P-450 isozymes on drug metabolism with suitable examples.(10 marks) [**Nov 2022**].
3. Discuss the role and clinical significance of genetic polymorphism in drug transports and drug targets with suitable examples.(10 marks) [**July 2022**].
4. Role of pharmacogenetics in drug metabolism.(5 marks) [**Feb 2022**].
5. Cytochrome P450 isoenzymes.(5 marks) [**Feb 2022**].
6. Discuss the importance of genetic polymorphism of cytochrome P-450 isozymes on drug metabolism with suitable examples.(10 marks) [**Oct 2021**].
7. Describe the genetic polymorphism in CYP2D6 and 2C9 isozymes.(5 marks) [**Oct 2021**].
8. Explain the role of pharmacogenetics in drug metabolism.(5 marks) [**May 2021**].
9. Discuss in detail about the family CYP1 and its role in pharmacogenetics.(10 marks) [**Nov 20**].
10. .Discuss the drug transporter that shows genetic polymorphism and its consequence.(5 marks) [**Nov 2020**].
11. Explain the genetic polymorphism in Drug Transport and Drug Targets.(5 marks) [**June 2019**].
12. Explain genetic polymorphism in drug metabolism.(10 marks) [**Dec 2019**].
13. Genetic polymorphism for drug transport.(5 marks) [**Dec2019**].
14. Genetic polymorphism.(5 marks) [**June 2018**].
15. Discuss about genetic polymorphism in drug metabolism with suitable examples.(5 marks) [**Dec 2018**].
16. Genetic polymorphism for drug targets.(5 marks) [**June 2017**].
17. Genetic polymorphism of cytochrome P-450 isoenzymes. (5 marks) [**Dec 2017**].

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, TIRUVALLA – 689107



SECOND YEAR PHARM D (PB)
QUESTION BANK



CLINICAL RESEARCH

(Q.P. Code: 501326)

CHAPTER I: DRUG DEVELOPMENT PROCESS

1. Explain about drug characterization in drug development process. - 5 Mark **[June 2023]**.
2. Discuss in detail the various approaches to drug discovery. - 10 Mark **[July 2022]**.
3. Explain in detail the formulation development process during drug discovery and lead optimization. - 10 Mark **[November 2022]**.
4. Explain the procedure for submission of investigational new drug application. - 5 Mark **[July 2022]**.
5. Write in detail about new drug development process. - 10 Mark **[February 2022]**.
6. Investigational new drug application. - 5 Mark **[October 2021]**.
7. What are the different stages of drug development process. - 10 Mark **[May 2021]**.
8. Define investigational new drug application and its procedure for submission. - 10 Mark **[May 2021]**.
9. Pharmacological approaches to drug discovery. - 5 Mark **[November 2020]**.
10. Explain the process of Investigational New Drug Application (INDA). - 10 Mark **[November 2020]**.
11. What are preclinical studies. Write the objectives of preclinical studies. - 5 Mark **[November 2020]**.
12. Lead optimization during the drug development process. - 5 Mark **[June 2019]**.
13. Explain the importance of pharmacological information in drug discovery. - 5 Mark **[June 2018]**.
14. Preclinical testing in clinical research. - 5 Mark **[June 2018]**.
15. Explain about pre-clinical development of drugs. - 10 Mark **[December 2018]**.
16. What is investigational new drug (IND). What are the contents and format of IND application. - 5 Mark **[December 2018]**.


CHAPTER II: CLINICAL DEVELOPMENT OF DRUG

1. Explain in detail various phases of clinical trials. - 10 Mark **(November 2022), (February 2022), [June 2019]**.
2. Why randomization is important in clinical research. - 5 Mark **[October 2021]**.
3. Differentiate between double-blind clinical trials and open labeled clinical trials. - 5 Mark **[October 2021]**.
4. Define clinical trial and its various phases. - 5 Mark **[May 2020]**.

5. Objectives of phase I and phase II studies. - 5 Mark **[June 2019]**.
6. Explain the methods and benefits of post marketing trial. - 5 Mark **[February 2022]**.
7. Explain various methods of post marketing surveillance. - 5 Mark **[July 2022]**.
8. What are the different methods of post marketing surveillance. - 10 Mark **[October 2021]**.
9. What are the essential documents for the conducting of clinical trials and its purpose. - 10 Mark **[June 2018]**.
10. Discuss the importance of post marketing surveillance (PMS) studies. Explain different methods of PMS studies with their advantages and disadvantages. - 10 Mark **[December 2018]**.
11. Active surveillance studies with its merits and demerits. - 5 Mark **[June 2019]**.
12. What are the advantages and disadvantage of active surveillance studies. - 5 Mark **[December 2019]**.
13. Explain briefly about Abbreviated New Drug Application (ANDA) submission. - 10 Mark **[June 2022]**.
14. What are the contents of an Abbreviated New Drug Application (ANDA). - 5 Mark **[December 2019]**.
15. Discuss about CDSCO guidelines. - 5 Mark **[November 2022]**.
16. Principles of ICH-GCP guidelines. - 5 Mark **[November 2022]**, **[December 2018]**.
17. Explain in detail about ICH guidelines. - 10 Mark **[July 2022]**, **[February 2022]**.
18. Explain the ethical principles as per International Council for Harmonization for technical requirements for pharmaceuticals for human use (ICH). - 10 Mark **[June 2019]**.
19. Write the functions of central drugs standard control organization (CDSCO) in the conduct of a clinical trial. - 5 Mark **[December 2019]**.
20. GCP. - 5 Mark **[June 2018]**.
21. Explain the qualification of an investigator and the roles and responsibilities of investigator as per ICH-GCP. - 10 Mark **[December 2018]**.
22. Explain the guidelines of Central Drug Control and Standard Organization in Good Clinical Practice. - 5 Mark **[February 2022]**.
23. Briefly explain the ICH guidelines. - 5 Mark **[June 2018]**.
24. What are the challenges in implementing ethical guidelines for conducting clinical trials in India. - 5 Mark **[June 2019]**.
25. Challenges in the implementation of ICH-Good Clinical Practice guidelines. - 5 Mark **[July 2022]**.
26. Challenges faced by investigator while conducting clinical trials. - 5 Mark **[June 2018]**.

27. Explain the ethical guidelines in clinical research. - 5 Mark [November 2021], [February 2022].
28. What are the ethical guidelines in clinical research. - 5 Mark [May 2021].
29. Explain composition and responsibilities of IRB. - 5 Mark [June 2023].
30. Explain Institutional Review Board (IRB). - 5 Mark [November 2021], [July 2022], [November 2022].
31. Explain composition and responsibilities of Institutional Ethical Committee. - 5 Mark [February 2022].
32. Write a brief note on Institutional Human Ethical Committee and its composition. - 5 Mark [May 2021].
33. Nuremberg code. - 5 Mark [November 2020], [December 2018].
34. Helsinki declaration. - 5 Mark [June 2019].
35. Thalidomide disaster. - 5 Mark [December 2019].
36. Explain about regulatory environment in India. - 5 Mark [June 2023].
37. Discuss the regulatory environment in USA. - 5 Mark [November 2022].
38. Discuss in detail the overview of regulatory environment in Europe. - 10 Mark [July 2022].
39. Enumerate in detail about overview of regulatory environment in India. - 10 Mark [February 2022].
40. Discuss in detail the overview of regulatory environment in Europe and USA. - 10 Mark [October 2021].
41. Responsibilities of auditor and clinical research associate. - 5 Mark [November 2022].
42. Write the roles and responsibilities of contract research coordinators in clinical trial. - 5 Mark [July 2022].
43. Discuss the roles and responsibilities of auditors in clinical research. - 5 Mark [July 2022], [July 2021], [December 2019].
44. What are the responsibilities of clinical research associate. - 5 Mark [February 2022].
45. Role and responsibility of clinical research coordinator. - 5 Mark [October 2021].
46. Purpose of an audit in clinical trial. - 5 Mark [October 2021].
47. Role and responsibility of clinical research coordinator. - 5 Mark [October 2021].
48. Describe about components of Investigators brochure. - 5 Mark [May 2021], [June 2018].
49. Functions of Sponsor in Clinical trial. - 5 Mark [November 2020].
50. Different types of audits in clinical trials. - 5 Mark [November 2020].
51. The roles and responsibilities of an investigator in clinical trials. - 5 Mark [June 2019].
52. Clinical Trial Registry in India (CTRI). - 5 Mark [June 2019].

53. List out the various activities of Clinical Research Associate (CRA) while monitoring a clinical trial. - 5 Mark **[December 2019]**.
54. Discuss about designing of protocol for clinical study. - 10 Mark **[June 2023]**.
55. Enumerate designing of case report form (CRF) with a suitable example. - 5 Mark **[November 2022]**.
56. Discuss briefly about designing of clinical study documents. - 5 Mark **[February 2022]**.
57. Case report form. - 5 Mark **[October 2021]**
58. What are the sections to be considered while designing a case report form. - 5 Mark **[June 2019]**.
59. Different sections of case report form with its importance in data management. - 5 Mark **[December 2018]**.
60. Explain informed consent process. - 5 Mark **[June 2023]**, **[November 2022]**, **[July 2022]**, **[May 2021]**.
61. Significance of informed patient consent. - 5 Mark **[February 2022]**.
62. Discuss on informed consent process for a clinical trial involving vulnerable population. - 10 Mark **[December 2019]**.
63. What is informed consent. Explain content of informed consent as per regulatory authorities in clinical trials. - 10 Mark **[October 2021]**.
64. What is the importance of an informed consent in clinical trial. Explain on designing of an informed consent form. - 10 Mark **[June 2019]**.
65. The roles of investigator during the informed consent process. - 5 Mark **[November 2020]**.
66. Write a note on Quality Assurance (QA) and Quality Control (QC) in clinical data management. - 5 Mark **[June 2023]**.
67. Discuss electronic data processing. - 5 Mark **[June 2023]**.
68. Describe in detail the various data management and its components. - 5 Mark **[May 2021]**.
69. Different components of data management in clinical trials. - 5 Mark **[November 2020]**.
70. Components of data management in clinical trials. - 5 Mark **[December 2018]**.
71. Explain Safety monitoring in clinical trials. - 5 Mark **[June 2023]**, **[October 2021]**, **[November 2020]**, **[June 2018]**.
72. Explain safety monitoring procedure in clinical trials. - 5 Mark **[July 2022]**.
73. Impartial witness. - 5 Mark **[October 2021]**.



**PHARMACOEPIDEMIOLOGY AND
PHARMACOECONOMICS
(Q.P. CODE: 202340)**

UNIT-I: PHARMACOEPIDEMOLOGY**a) Definition and scope**

1. Discuss the aims and applications of pharmacoepidemiology (05 marks) (June 2023).

b) Measurement of outcomes in pharmacoepidemiology

1. Explain the methods to measure patient medication adherence and discuss the strategies to improve medication adherence (10 marks) (November 2022).

2. Explain prevalence and incidence with examples (10 marks) (June 2023) (November 2022).

3. Differentiate between prescribed daily dose (PDD) and defined daily dose (DDD) (05 marks) (November 2022) (February 2022).

4. Give a note on outcome measurement in pharmacoepidemiology (05 marks) (October 2021).

c) Concept of risk in pharmacoepidemiology

1. Write a note on attributable risk and relative risk with suitable examples (10 marks) (June 2023).

2. Explain concept of risk in pharmacoepidemiology (10 marks) (November 2022).

3. Explain odds ratio and relative risk (05 marks) (November 2020).

4. Explain time-risk relationship and odds ratio with suitable examples (05 marks) (June 2019)

5. Explain attributable risks and relative risks (05 marks) (May 2018).

d) Pharmacoepidemiological methods

1. Explain prescription event monitoring (05 marks) (June 2023)

2. The advantages and disadvantages of cross-sectional study and cohort study (05 marks) (November 2022).

3. Define meta-analysis. Mention the strength and weakness of meta-analysis study (05 marks) (November 2022).

4. Discuss the important considerations while performing a meta-analysis (10 marks) (February 2022).

5. Explain the process for prescription event monitoring (PEM) (05 marks) (February 2022).

6. What is drug utilization evaluation. Explain briefly on the concept, types and applications of drug utilization evaluation (10 marks) (July 2022).

7. Concept and applications of cross sectional studies **(05 marks) (July 2022)**.
 8. Case reports and case series **(05 marks) (July 2022)**.
 9. Record linkage system **(05 marks) (July 2022) (June 2018)**.
 10. Explain the stages involved in establishing a drug utilization review program in a hospital set up **(10 marks) (October 2021)**.
 11. Explain information flow in record linkage system **(05 marks) (October 2021)**.
 12. Define drug utilization review (DUR) and explain the steps in establishing a DUR program in a hospital set up **(10 marks) (November 2020)**.
 13. Describe cross-sectional study and meta-analysis **(10 marks) (November 2020)**.
 14. Explain case reports and case series with examples **(05 marks) (November 2020)**.
 15. Explain the advantages and disadvantages of cohort studies **(05 marks) (November 2020)**.
 16. Write the application of drug utilization review **(05 marks) (June 2019)**.
 17. Discuss the advantages of spontaneous reporting over prescription event monitoring **(05 marks) (June 2019)**.
 18. Describe cohort study and case control study with suitable example **(10 marks) (June 2018)**.
 19. Explain briefly the steps in drug utilization review **(05 marks) (June 2018)**.
 20. Explain the strengths and limitations of spontaneous ADR reporting **(05 marks) (June 2018)**.
- e) Sources of data for pharmacoepidemiological studies**
1. Explain the merits and demerits of automated data bases **(05 marks) (November 2022)**.
 2. List out the various adhoc and auto mated data system. Mention its usefulness **(05 marks) (July 2022)**.
 3. Explain use of automated data systems in pharmacoepidemiological studies **(05 marks) (October 2021)**.
 4. Explain medical record data base system with its applications **(05 marks) (June 2019)**.
 5. Explain ad hoc data sources in pharmacoepidemiological studies **(05 marks) (June 2018)**.
- g) Selected special applications of pharmacoepidemiology**
1. What is pharmacoepidemiology and discuss the principles involved in the risk management **(05 marks) (June 2023)**.
 2. Vaccine safety studies **(05 marks) (November 2022)**
 3. Explain briefly drug induced birth defects with examples **(05 marks) (November 2022)**

4. Explain the methodological problems in drug-induced birth defect studies **(05 marks (February 2022))**.
5. Explain vaccine safety program **(05 marks) (October 2021)**.

UNIT- II: PHARMACOECONOMICS:

b) Pharmacoeconomic evaluation

1. Discuss the role of pharmacoeconomics in the hospital formulary management decisions **(05 marks) (June 2023)**.
2. What is pharmacoeconomics. Discuss the usefulness of pharmacoeconomics principles in formulary decision-making process **(10 marks) (July 2022)**.
3. Explain role of pharmacoeconomics in formulary management decision **(10 marks) (October 2021)**.
4. Explain briefly the role of pharmacoeconomics in formulary management decisions **(05 marks) (November 2020)**.
5. Role in formulary management decision **(05 marks) (June 2019)**.
6. Enumerate various types of pharmacoeconomic evaluation and its role in formulary management decisions **(10 marks) (June 2018)**.

UNIT – II: PHARMACOECONOMIC EVALUATION

1. Classify pharmacoeconomic evaluations and explain in detail about cost– effectiveness analysis with suitable example **(10 marks) (June 2023)**.
2. Explain cost minimization analysis **(05 marks) (June 2023)**.
3. Describe the cost minimization analysis and cost benefit analysis citing suitable examples **(10 marks) (November 2022)**.
4. Explain the cost utility analysis and cost minimization analysis **(05 marks) (July 2022)**.
5. Define pharmacoeconomics and explain cost-benefit and cost utility analysis with suitable examples **(10 marks) (February 2022)**.
6. Explain direct and indirect medical costs with suitable examples **(05 marks) (February 2022)**.
7. Cost effectiveness analysis **(05 marks) (October 2021)**.

8. Describe cost-effectiveness analysis and cost-utility analysis citing suitable examples (10 marks) (June 2018).

UNIT - III: APPLICATIONS OF PHARMACOECONOMICS

1. Discuss the application of software in pharmacoeconomics (05 marks) (June 2018).





**CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING
(QP CODE: 203340)**

CHAPTER 1: INTRODUCTION TO CLINICAL PHARMACOKINETICS.

1. Explain the relationship between the dose and pharmacological effect of a drug. (5 marks) **[June 2023]**.
2. Relationship between elimination half-life and duration of activity of drugs. (5 marks) **[Oct 2021]**.
3. Define and explain the applications of clinical pharmacokinetic principles. (5 marks) **[June 2018]**.

CHAPTER 2: DESIGN OF DOSAGE REGIMENS

1. Explain the various factors considered in the design of dosage regimen for geriatric and obese patients. (10 marks) **[June 2023]**.
2. Explain the effect of age and body weight in the individualization of the drug dosage regimen. (5 marks) **[June 2023]**.
3. Explain nomograms in designing dosage regimen. (5 marks) **[June 2023]**.
4. An adult female patient (50 years old, 56 kg) whose serum creatinine is 2.7 mg/dL is to be given gentamicin sulphate. The usual dose of gentamicin in adult patients with normal renal function is 1 mg/kg every 8 hours by multiple IV bolus injections. Calculate the appropriate dosage regimen of gentamicin sulfate for this patient.(5marks) **[June 2023]**.
5. How to determine the dose and dosing interval of a drug administered through an intravenous route of administration. (5 marks) **[Nov 2022]**.
6. Explain the role of co-existing diseases and interacting drugs in the individualization of drug dosage regimen. (5 marks) **[Nov 2022]**.
7. Explain adaptive dosing or dosing with feedback. (5 marks) **[July 2022]**.
8. Describe nomograms and their applications in designing dosage regimen. (5 marks) **[July 2022]**.
9. Explain dosage regimen design. (5 marks) **[July 2022]**.
10. Explain drug dosage adjustment in pediatric patients. (5 marks) **[July 2022]**.
11. Explain the pharmacokinetic factors that govern dosage adjustment in pediatric and elderly patients. (10marks) **[Feb 2022]**.
12. Explain the process of determination of dose and dosing interval. (5 marks) **[Feb 2022]**.
13. Explain the principles and significance of converting IV dose to oral therapy. (5 marks) **[Oct 2021]**.
14. List out the various variable factors in individualizing drug dosage regimen and explain. (5 marks) **[Oct 2021]**.

15. Explain the process of IV to oral conversion. (5 marks) [Nov 2020].
16. Explain the patient selection criteria for IV to oral conversion. (5 marks) [Nov 2020].
17. Explain the factors affecting pharmacokinetics in obese patients and describe dosage adjustment in obese patients. (5 marks) [Nov 2020].
18. Define nomograms. Explain the indications of it in pharmacokinetic studies. Add a note on its advantages and disadvantages. (10 marks) [June 2019].
19. Explain conversion from intravenous infusion to oral dosing.(5 marks) [June 2019].
20. Explain the various factors to be considered while designing a dosage regimen. (10 marks) [Dec 2019].
21. How to convert intravenous dosing to oral dosing. (5 marks) [Dec 2019].
22. Various methods of drug dosage adjustments in pediatric patients. (5 marks) [Dec 2019].
23. Describe in detail about the altered pharmacokinetics in geriatric patient population. (10 marks) [June 2018].
24. Explain the factors to be considered while designing a dosage regimen. (5 marks) [June 2018].
25. Explain in detail the principles and dosage adjustments in elderly patients. (5 marks) [June 2017].
26. Define and write the various applications of nomograms. (5 marks) [June 2017].

CHAPTER 3 : PHARMACOKINETICS OF DRUG INTERACTION

1. Write short notes on pharmacokinetic drug interactions with suitable examples for each type. (5 marks) [June 2023].
2. Explain the influence of drug interaction on drug metabolism with respect to enzyme induction and enzyme inhibition. (5 marks) [Nov 2022].
3. Explain various types of pharmacokinetic drug interactions with examples. (10 marks) [July 2022].
4. Explain the mechanisms of enzyme inhibition. (5 marks) [July 2022].
5. Explain the mechanisms of enzyme induction. (5 marks) [Feb 2022].
6. Define pharmacokinetic drug interactions with suitable examples. . (10 marks) [Feb 2022].
7. Explain in detail the enzyme induction and enzyme inhibition on drug interactions with examples. (10 marks) [Feb 2022].
8. Explain absorption interactions with examples.(5 marks) [Nov 2020].
9. Explain the effects of enzyme induction and enzyme inhibition.(5 marks) [Nov 2020].

10. Explain in detail the importance of enzyme induction and inhibition in drug interactions by providing suitable examples.(5 marks) [**June 2019**].
11. Explain the main categories of pharmacokinetic drug interactions.(10 marks) [**June 2018**].
12. Define pharmacokinetic drug interactions by providing suitable examples. Add a note on how they influence ADME of a drug.(10 marks) [**June 2017**].
13. Importance of liver enzymes in drug interactions with examples.(5 marks) [**June 2017**].

CHAPTER 4: THERAPEUTIC DRUG MONITORING

1. Explain the necessity and process of TDM in patients receiving cyclosporine and carbamazepine.(10 marks) [**June 2023**].
2. List out the indications for TDM. Explain the necessity and process of TDM in patients receiving digoxin and phenytoin.(10 marks) [**Nov 2022**].
3. Explain the indications for therapeutic drug monitoring and explain TDM of carbamazepine, digoxin and cyclosporine(10 marks) [**July 2022**].
4. Mention the process of adaptive dosing with feedback and describe the advantages of this method over conventional therapeutic drug monitoring.(10 marks) [**Feb 2022**].
5. Describe TDM of carbamazepine and valproate. (5 marks) [**Feb 2022**].
6. Describe the soft link model for PK/PD correlation. (5 marks) [**Feb 2022**].
7. Define therapeutic drug monitoring. Explain the various indications of TDM. Give in detail the TDM of any one drug.(10 marks) [**Oct 2021**].
8. Explain direct and indirect link models for pharmacokinetic and pharmacodynamic correlation.(10 marks) [**Nov 2020**].
9. Explain TDM of Lithium and amiodarone.(5 marks) [**Nov 2020**].
10. Explain in detail the TDM of digoxin.(5 marks) [**June 2019**].
11. Explain in detail about therapeutic drug monitoring procedure for digoxin.(10marks) [**Dec 2019**].
12. Pharmacokinetic and pharmacodynamic correlation in drug therapy.(5 marks) [**Dec 2019**].
13. Describe in detail about the practical correlations for conducting therapeutic drug monitoring.(10 marks) [**June 2018**].
14. Explain the therapeutic drug monitoring procedure for cyclosporine.(5 marks) [**June 2018**].
15. Pharmacokinetic and pharmacodynamic correlation in drug therapy.(5 marks) [**June 2018**].

16. Define TDM. Describe a typical protocol for TDM of a drug. Explain the TDM of any one drug. (10 marks) [June 2017].

17. Pharmacokinetic and pharmacodynamic correlations in drug therapy.(5 marks) [June 2017].

CHAPTER 5: DOSAGE ADJUSTMENT IN RENAL AND HEPATIC DISEASE.

1. Explain in detail the different methods of extracorporeal removal of drugs.(10 marks) [June 2023].

2. Explain the various pharmacokinetic changes observed in patients with renal impairment.(5 marks) [June 2023].

3. Describe peritoneal dialysis with its advantages and disadvantages.(5 marks) [June 2023].

4. (a) Discuss various markers used in the measurement of glomerular filtration rate along with their advantages and disadvantages. (b) Enumerate the various formulae used for the measurement of creatinine clearance.(10 marks) [Nov 2022].

5. Explain the dosage adjustment in uremic patients.(5 marks) [Nov 2022].

6. What is the creatinine clearance for a 22-year-old male patient with a serum creatinine of 1mg/dL. The patient is 4 ft, 3inches in height and weighs 86 Kg.(5 marks) [Nov 2022].

7. Write a note on the Inhibition of biliary excretion.(5 marks) [Nov 2022].

8. Explain dosage adjustment in renal failure.(5 marks) [July 2022].

9. Explain the factors affecting dialyzability of a drug.(5 marks) [Feb 2022].

10. Explain the principles for dosage adjustment in hepatic failure.(5 marks) [Feb 2022].

11. Haemodialysis. (5 marks) [Oct 2021].

12. Explain the effect of liver diseases on pharmacokinetics of drugs. (5 marks) [Oct 2021].

13. Dosage adjustment for uremic patient.(5 marks)[Oct 2021].

14. Explain the process of extracorporeal removal of drugs.(10 marks) [Nov 2020].

15. Explain Child Pugh classification of hepatic disorders and mention its application in dosage adjustment. (5 marks) [Nov 2020].

16. Explain in detail the various methods for estimating dosage regimens in uremic patients.(10 marks) [June 2019].

17. Various methods of determining creatinine clearance.(5 marks) [June 2019].

18. The various methods of determining glomerular filtration rate. (5 marks) [June 2019].

19. Explain the extracorporeal removal of drugs.(5 marks) [June 2019].

20. Explain in detail about the altered pharmacokinetics in hepatic failure.(10 marks) [Dec 2019].

21. How will you adjust the dosage regimen of a drug in case of renal failure.(5marks) [**Dec 2019**].
22. Procedure to calculate creatinine clearance.(5 marks) [**Dec 2019**].
23. How to assess hepatic failure in patients.(5 marks) [**June 2018**].
24. Mention ideal characteristics of markers of glomerular filtration rate and add a note on various endogenous markers.(5 marks) [**June 2018**].
25. Dosage adjustment in renal disease . (5 marks) [**June 2017**].
26. Explain in detail about peritoneal dialysis.(5 marks) [**June 2017**].

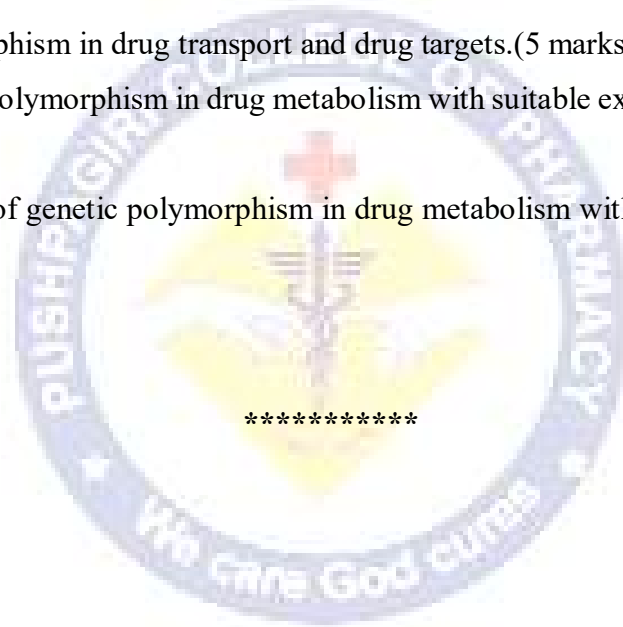
CHAPTER 6: POPULATION PHARMACOKINETICS

1. Describe Bayesian theory. (5marks) [**Nov 2022**].
2. What are the limitations of the population pharmacokinetic approach. (5marks) [**Nov 2022**].
3. Explain Bayesian theory with an example. (5 marks) [**July 2022**].
4. Explain methods for analysis of population pharmacokinetic data. (10 marks) [**Feb 2022**].
5. Describe the salient features that differentiates conventional and population pharmacokinetics.(5 marks) [**Feb 2022**].
6. Explain in detail any two methods of determining population pharmacokinetic data.(10 marks) [**Oct 2021**].
7. Explain bayesian theory in detail.(5 marks) [**Oct 2021**].
8. Explain nonlinear mixed effect model for population pharmacokinetic data analysis.(5 marks) [**Nov 2020**].
9. Explain the bayesian theory and its applications with suitable examples.(10 marks) [**June 2019**].
10. Explain the NONMEM method of analyzing population pharmacokinetic data.(5 marks) [**June 2019**].
11. Population pharmacokinetics using NONMEM.(5 marks) [**Dec 2019**].
12. Explain bayesian theory.(5 marks) [**June 2018**].
13. Define population pharmacokinetic data. Explain in detail the methods adopted for analyzing such data.(10 marks) [**June 2017**].
14. Explain in detail bayesian theory.(5 marks) [**June 2017**].

CHAPTER 7: PHARMACOGENETICS

1. Describe the genetic polymorphism in CYP2D6 and 2C9 isozymes.(5marks) [**June 2023**].
2. Discuss the role and clinical significance of genetic polymorphism in drug transports and drug targets with suitable examples.(10 marks) [**Nov 2022**].

3. Explain the genetic polymorphism in drug transporters and drug targets.(10 marks) [**July 2022**].
4. Explain the genetic polymorphism of Cytochrome P-450 Isoenzymes.(5 marks) [**July 2022**].
5. Describe genetic polymorphism CYP2C9 & CYP2D6. (5 marks) [**Feb 2022**].
6. Explain the role of genetic polymorphism on drug metabolism with examples.(5 marks) [**Oct 2021**].
7. Explain the genetic polymorphism in cytochrome P450 isozymes in drug metabolism.(10 marks) [**Nov 2020**].
8. Explain the genetic polymorphism in CYP2D6 and 2C9 iso-enzymes.(5 marks) [**June 2019**].
9. Genetic polymorphism in drug transport and drug targets.(5 marks) [**Dec 2019**].
10. Explain genetic polymorphism in drug metabolism with suitable examples.(5 marks) [**June 2018**].
11. Explain the role of genetic polymorphism in drug metabolism with examples.(5 marks) [**June 2017**].



PUSHPAGIRI COLLEGE OF PHARMACY
SEVENTH SEMESTER B. PHARM 2023-2024
PRACTICE SCHOOL

DEPARTMENT OF PHARMACEUTICS

SL.NO:	NAME OF THE STUDENT	VENUE	DATE & TIME
1.	ACHU ABRAHAM	M PHARM CLASSROOM (I FLOOR)	03.01.2024 09.00 AM
2.	AISWARYA BABU		
3.	ALEENA JOSSY		
4.	ALEENA SAJEEV		
5.	ALENA AJI		
6.	ANASWARA K		
7.	ANGEL MARIA K THOMAS		
8.	ANJU ANTONY		
9.	ANU BABU		
10.	ASHLIN MARY VARGHESE		
11.	ASWATHY RAMADAS		
12.	ATHIRA CHANDRADAS		

DEPARTMENT OF PHARMACOGNOSY

SL.NO:	NAME OF THE STUDENT	VENUE	DATE & TIME
1.	AYSHA HUSSAIN	M PHARM CLASSROOM (II FLOOR)	03.01.2024 09.00 AM
2.	BINCY JERON		
3.	DEVIKA R		
4.	FEBIJA S		
5.	GOPIKA M		
6.	HANNA MARIYAM SHIBU		
7.	HELLEN P MAMAN		
8.	JAIN THOMAS		

[Handwritten signature]



[Handwritten signature]

Principal
 Pushpagiri College of Pharmacy
 Medicity Campus, Tiruvalla
 Pathanamthalam, Kerala

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

SL.NO:	NAME OF THE STUDENT	VENUE	DATE & TIME
1.	JEEVAN SIBICHAN	SEVENTH SEMESTER B PHARM CLASSROOM	03.01.2024 09.00 AM
2.	JUBY JOSE		
3.	JULIE JOSE		
4.	KEVIN STANLEY		
5.	LIBINA JOSEPH		
6.	LINTA MATHEW		
7.	MALAVIKA PRAKASH		
8.	MEHRA ANSARI		
9.	MERIN M KURUVILA		
10.	MILENA GEORGE		
11.	MITHRA ELA MATHEW		
12.	NAVYA ELIZABETH THOMAS		
13.	NIKITH KRISHNA		
14.	RAGADH MARYAM SAIF		
15.	RESHMA K J		
16.	RINCY MARIAM KOSHY		
17.	RINU THANKACHAN		
18.	RIYA MARY S		
19.	ROBIN ROY		
20.	SAM T ACHENKUNJU		

[Handwritten signature]



Mante
 Principal
 Pushpagiri College of Pharmacy
 Medicity Campus, Tiruvalla
 Kerala - 689 107, Kerala

DEPARTMENT OF PHARMACOLOGY

SL.NO:	NAME OF THE STUDENT	VENUE	DATE & TIME
1.	SAMYUKTHA P S	M PHARM CLASSROOM (III FLOOR)	03.01.2024 09.00 AM
2.	SANDRA MARIAM BINU		
3.	SANDRA S		
4.	SHABANA S		
5.	SHAHINA ANWAR		
6.	SHAJO SHAJI		
7.	SHEBA ELIZABETH JOHN		
8.	SINJU ELSA SAJAN		
9.	SNEHA SONY		
10.	SOUMYA SAMUEL		
11.	SREELAKSHMI C B		
12.	SRUTHI S KUMAR		

DEPARTMENT OF PHARMACY PRACTICE

SL.NO:	NAME OF THE STUDENT	VENUE	DATE & TIME
1.	SWATHI S	THIRD PHARM D CLASSROOM	03.01.2024 09.00 AM
2.	GAYATHRI P M		
3.	JITHU VIJAYAN		
4.	KRISHNA S		
5.	SREELEKSHMI S		
6.	UTHARA S		
7.	AJMI S A		
8.	SABIRA S		
9.	THASNI S		

[Handwritten signature]



Mark
 Principal
 Pushpagiri College of Pharmacy
 Medicity Campus, Tiruvalla
 Kerala - 689 107, Kerala

PUSHPAGIRI COLLEGE OF PHARMACY
VII SEMESTER B PHARM 2023-2024
PRACTICE SCHOOL DETAILS

Reg No	Name of the Student	Department	Details of the Module for Practice School Project	Title of the Practice School	Name of the Supervisor	Signature of the Supervisor	Signature of the Student
190091374	Achu Abraham	Pharmaceutics	Module IV - Novel drug delivery system	Effect of exosomes on targeted drug delivery with respect to multiple diseases.	Mrs Deepthi Mathew		
190091375	Aiswarya Babu	Pharmaceutics	Module IV - Novel drug delivery system	Applications of Microsponges in Autoimmune Disorders.	Mrs Deepthi Mathew		
190091376	Aleena Jossy	Pharmaceutics	Module IV - Novel drug delivery system	Advantages of herbal nanoparticles against cancer over conventional formulations	Mrs Deepthi Mathew		
190091377	Aleena Sajeev	Pharmaceutics	Module IV - Novel drug delivery system	Spingosomes: An emerging vesicular carrier for enhanced drug delivery system.	Mrs Sreekavya B		
190091378	Aleena Aji	Pharmaceutics	Module IV - Novel drug delivery system	Cubosomes: A novel carrier for targeted drug delivery system.	Mrs Sreekavya B		
190091379	Anaswara K	Pharmaceutics	Module IV - Novel drug delivery system	Proniosome: An efficient drug carrier for transdermal drug delivery system.	Mrs Sreekavya B		



Practice School Coordinator





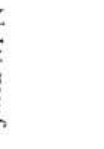

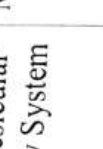
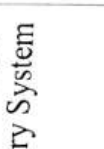
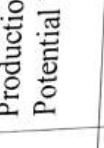
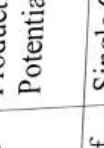
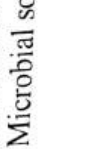



Academic Coordinator



Vice Principal



Principal

190091380	Angel Maria K Thomas	Pharmaceutics	Module IV - Novel drug delivery system	Floating Microspheres: An Approach to Enhance the Gastric Residence Time.	Mrs Anjana M N		
190091381	Anju Antony	Pharmaceutics	Module IV - Novel drug delivery system	Novel Microemulsion Based Gel Formulation for the Treatment of Acne Vulgaris.	Mrs Anjana M N		
190091382	Anu Babu	Pharmaceutics	Module IV - Novel drug delivery system	Transfersomes: A Vesicular Transdermal Delivery System for Enhanced Drug Permeation.	Mrs Anjana M N		
190091383	Ashlin May Varghese	Pharmaceutics	Module IV - Isolation of RNA, DNA and Protein from Microbial source	Single Cell Protein Production from Biomass: A Potential Nutrient Substitute.	Mrs Bincy K Chacko		
190091384	Aswathy Ramadas	Pharmaceutics	Module IV - Isolation of RNA, DNA and Protein from Microbial source	Single Cell Protein Production from Purple Non-Sulphur Bacteria: A Potential Nutrient Substitute.	Mrs Bincy K Chacko		
190091385	Athira Chandradas	Pharmaceutics	Module IV - Isolation of RNA, DNA and Protein from Microbial source	Single Cell Protein Production from Fruit waste: A Potential Nutrient Substitute.	Mrs Bincy K Chacko		



Practice School Coordinator









Academic Coordinator



Vice Principal



Principal

190091386	Aysha Hussain	Pharmacognosy	Module II & IV - Different types of herbal drugs for pharmaceutical preparation	A review on: Herbal approach to the management of thyroid diseases	Mrs. Jeenu Joseph	
190091387	Biney Jeron	Pharmacognosy	Module II & IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Herbal medicines used for female infertility	Mrs. Jeenu Joseph	
190091388	Devika R	Pharmacognosy	Module II & IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Herbs as a source for the treatment of polycystic ovarian syndrome	Mrs. Jeenu Joseph	
190091389	Febija S	Pharmacognosy	Module II & IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Synsepalum dulcificum-Miracle fruit	Mrs. Jeenu Joseph	
190091391	Gopika M	Pharmacognosy	Module II & IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Herbal plants showing Teratogenicity	Ms. Anju A Varghese	
190091392	Hanna Mariyam Sribu	Pharmacognosy	Module II & IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Immunotherapeutic potential of Tinospora cordifolia	Ms. Anju A Varghese	



Practice School Coordinator

 Academic Coordinator

 Vice Principal

 Principal

190091393	Hellen P Maman	Pharmacognosy	Module II& IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Aromatherapy	Ms. Anju A Varghese				
190091394	Jain Thomas	Pharmacognosy	Module II& IV - Different types of herbal drugs used for pharmaceutical preparation	A review on: Herbal drugs in Parkinson's disease	Ms. Anju A Varghese				
190091395	Jeevan Sibichan	Pharmaceutical	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	An Overview of Computer- aided Drug Design Tools and Recent Applications in Designing of Barbiturates	Mrs. Saira Susan Varghese				
190091396	Judy Jose	Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	Advances in the molecular modelling and quantitative structure-activity relationship-based design of Benzodiazepine anticonvulsants	Mrs. Saira Susan Varghese				
190091397	Julie Jose	Pharmaceutical	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Expediting the Design, Discovery and Development of benzodiazepine hypnotics using Computational Approches	Mrs. Saira Susan Varghese				

Practice School Coordinator

Academic Coordinator

Vice Principal

Principal











190091399	Kevin Stanley	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Structure-based Virtual Screening and Molecular Dynamic Simulation Approach for benzodiazepines as Potential Anxiolytics	Mrs. Saira Susan Varghese		
	Libina Joseph	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies of drugs using various computational soft wares	Advances in molecular modelling and quantitative structure-activity relationship-based design of some potential β -adrenergic blockers	Mrs Ragisha Francis		
190091400	Linta Mathew	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Expediting the Design, Discovery and Development of few α -adrenergic blockers using Computational Approaches	Mrs Ragisha Francis		
190091401	Malavika Prakash	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	An Overview of Computer-aided Drug Design Tools and Recent Applications in Designing of some directly acting sympathomimetic agents.	Mrs Ragisha Francis		
190091402	Mehra Ansari	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Approaches of computer aided drug design tools on Indirectly acting sympathomimetics - an overview	Mrs Ragisha Francis		

Principal

Vice Principal

Academic Coordinator

Practice School Coordinator

190091403	Merin M Kuruvi	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	A Review On In-Silico drug designing of direct acting cholinergic agents	Mrs Anju V		
190091404	Milena George	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Advances in the molecular modelling and quantitative structure-activity relationship-based design of some indirect acting cholinergic agents.	Mrs Anju V		
190091405	Mithra Ela Mathew	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	An overview of structure-based Virtual Screening and Molecular Dynamic Simulation Approach to solanaceous alkaloids and its analogues as potential anticholinergic agents.	Mrs Anju V		
190091406	Navya Elizabeth Thomas	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Insights into the structure and drug design of some synthetic cholinergic blocking agents.	Mrs Anju V		
190091407	Nikitha Krishna	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	An Overview on Computer-aided discovery of thioxanthene derivatives as multi-target drugs against Psychosis	Mrs Mincy Mathew		



Practice School Coordinator








Academic Coordinator



Vice Principal



Principal

190091408	Ragadh Maryam Saif	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	An <i>in-silico</i> approach to drug design and development of Phenothiazine derivatives and its analogues against Dopamine receptor-An overview	Mrs Mincy Mathew	
190091409	Reshma K J	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	Insights into the structure and drug design of Flurobutyphenones derivatives targeting dopamine receptor.	Mrs Mincy Mathew	
190091410	Rincy Mariam Koshy	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	A Review on <i>In-Silico</i> Drug Designing of atypical antipsychotics	Mrs Mincy Mathew	
190091411	Rinu Thankachan	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Insights into the structure and drug design of amide derivatives inhibiting voltage gated Sodium channels.	Dr Christy K Jose	
190091412	Riya Mary S	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Molecular dynamics and <i>in-silico</i> ADME studies of some Ester linked Local anaesthetics	Dr Christy K Jose	




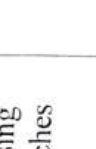



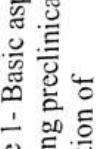


Principal


Vice Principal


Academic Coordinator


Practice School Coordinator

1900091413

Robin Roy	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational soft wares	Structure-based Virtual Screening and Molecular Dynamic Simulation Approach for H ₁ antihistaminics	Dr Christy K Jose		
19009414	Pharmaceutical Chemistry	Module I, II, III Drug designing, QSAR studies and in-silico studies of drugs using various computational softwares	Expediting the Design, Discovery and Development of H ₁ antihistaminics using Computational Approaches	Dr Christy K Jose		
190091415	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Invitro and Invivo screening methods for Antiepileptics.	Mrs. Anjana George		
190091416	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Preclinical Screening models for Alzheimer's disease	Mrs. Anjana George		
190091417	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Parkinson's Disease: Its preclinical screening techniques	Mrs. Anjana George		














Practice School Coordinator


Academic Coordinator


Vice Principal


Principal

190091418

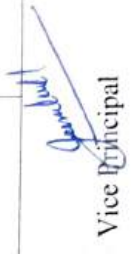
Shabana S	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Assessment of pain & cognition: types, mechanism and treatment	Mrs. Sumi James		
190091419	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Review of pharmacologic receptors and advances	Mrs. Sumi James		
190091420	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	A review on potential use of antibiotics	Mrs. Sumi James		
190091422	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Preclinical Studies for Antianginal agents	Ms. Neethi Shaju		
190091423	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Invitro and Invivo screening methods for Congestive Heart Failure	Ms. Neethi Shaju		
190091424	Pharmacology	Module 1 - Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Preclinical Screening methods for Antihypertensive agents	Ms. Neethi Shaju		



Practice School Coordinator









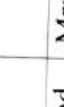

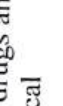

Academic Coordinator



Vice Principal



Principal









190091425	Soumya Samuel	Pharmacology	Module 1- Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Novel drugs for Ulcer and its preclinical screening methods.	Mrs.Preethu P John		
190091426	Sreelakshmi C B	Pharmacology	Module 1- Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Preclinical Screening methods and novel drugs for Antiasthmatic Activity	Mrs. Preethu P John		
190091427	Sruthi S Kumar	Pharmacology	Module 1- Basic aspects regarding preclinical evaluation of drugs.(invitro & invivo)	Novel anti-anxiety drugs and its various preclinical screening models	Mrs. Preethu P John		
190091428	Swathi S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre counselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for Systemic lupus erythematosus	Mrs. Julie Mariam Joshua		
190091429	Gayathri P M	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre counselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for Deep vein thrombosis	Mrs. Julie Mariam Joshua		

Practice School Coordinator

Academic Coordinator

Vice Principal

Principal

190091430	Jithu Vijayan	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Precounselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for Alcoholic liver disease	Mrs. Julie Mariam Joshua		
190091431	Krishna S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre counselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for polycystic ovarian disease	Mrs. Merin T. Koshy		
190091432	Sreelekshmi S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre counselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for hyperthyroidism	Mrs. Merin T. Koshy		
190091433	Uthara S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre counselling processing, Patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for conjunctivitis	Mrs. Merin T. Koshy		



Practice School Coordinator









Academic Coordinator



Vice Principal



Principal

190093927	Ajmi S A	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for hyperlipidaemia	Mrs. Archana Vijay		
190093928	Sabira S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for Autism	Mrs. Archana Vijay		
190093929	Thasni S	Pharmacy Practice	Module I, II, III & IV- Overview of patient counselling, Pre patient counselling session and Patient counselling assessment & Evaluation	Patient Counselling for Obsessive-compulsive disorder	Mrs. Archana Vijay		



Academic Coordinator



Vice Principal





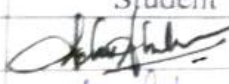















Practice School Coordinator













Principal

PUSHPAGIRI COLLEGE OF PHARMACY
SEVENTH SEMESTER B. PHARM 2023-24
PRACTICE SCHOOL
LIST OF STUDENTS AND SUPERVISING FACULTY

DEPARTMENT OF PHARMACEUTICS (Batch A)

Sl.No:	Name of the Students	Signature of the Student	Supervising Faculty	Signature of the faculty
1.	Achu Abraham		Mrs. Deepthi Mathew	
2.	Aiswarya Babu			
3.	Aleena Jossy		Mrs. Sreekavya B	
4.	Aleena Sajeev			
5.	Alena Aji			
6.	Anaswara K		Mrs. Anjana M N	
7.	Angel Maria K Thomas			
8.	Anju Antony		Mrs. Bincy K Chacko	
9.	Anu Babu			
10.	Ashlin Mary Varghese			
11.	Aswathy Ramadas			
12.	Athira Chandradas			

DEPARTMENT OF PHARMACOGNOSY (Batch A)


Sl.No:	Name of the Students	Signature of the Student	Supervising Faculty	Signature of the faculty
1.	Aysha Hussain		Mrs. Jeenu Joseph	
2.	Bincy Jeron			
3.	Devika R		Ms. Anju A Varghese	
4.	Debija S			
5.	Gopika M			
6.	Hanna Mariyam Shibu			
7.	Hellen P Maman			
8.	Jain Thomas			


Practice School Coordinator


Academic Coordinator


Principal

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY (Batch B)

Sl.No:	Name of the Students	Signature of the Student	Supervising Faculty	Signature of the faculty
1.	Jeevan Sibichan		Mrs. Saira Susan Varghese	
2.	Juby Jose			
3.	Julie Jose			
4.	Kevin Stanley			
5.	Libina Joseph		Mrs. Ragisha Francis	
6.	Linta Mathew			
7.	Malavika Prakash			
8.	Mehra Ansari			
9.	Merin M Kuruvila		Mrs. Anju V	
10.	Milena George			
11.	Mithra Ela Mathew			
12.	Navya Elizabeth Thomas			
13.	Nikith Krishna		Mrs. Mincy Mathew	
14.	Ragadh Maryam Saif			
15.	Reshma K J			
16.	Rincy Mariam Koshy		Dr.Christy K Jose	
17.	Rmu Thankachan			
18.	Riya Mary S			
19.	Robin Roy			
20.	Sam T Achenkunju			


Practice School Coordinator


Academic Coordinator


Principal

DEPARTMENT OF PHARMACOLOGY (Batch C)

Sl.No:	Name of the Students	Signature of the Student	Supervising Faculty	Signature of the faculty
1.	Samyuktha P S		Mrs Anjana George	
2.	Sandra Mariam Binu			
3.	Sandra S			
4.	Shabana S		Mrs. Sumi James	
5.	Shahina Anwar			
6.	Shajo Shaji			
7.	Sheba Elizabeth John		Ms. Neethi Shaju	
8.	Sinju Elsa Sajan			
9.	Sneha Sony			
10.	Soumya Samuel		Mrs. Preethu P John	
11.	Sreelakshmi C B			
12.	Sruthi S Kumar			














DEPARTMENT OF PHARMACY PRACTICE (Batch C)

Sl.No:	Name of the Student	Signature of the Student	Supervising Faculty	Signature of the faculty
1.	Swathi S		Mrs. Julie Mariam Joshua	
2.	Gayathri P M			
3.	Jithu Vijayan			
4.	Krishna S		Mrs. Merin.T. Koshy	
5.	Sreelekshmi S			
6.	Uthara S			
7.	Ajmi S A		Mrs. Archana Vijai	
8.	Sabira S			
9.	Thasni S			

Practice School Coordinator

Academic Coordinator


Principal

1	Postbacc College of Pharmacy, Tiruvalla	P21	180091153	ANUSU SATHI	Pharmaceutical Regulatory Sciences	Cosmetic Science	Pharmaceutical Regulatory Sciences	EXALATION OF ANTIBACTERIAL HERBAL LIP BALM	Dr. K. George	M.Pharm-Pharmaceutical Biotechnology	
2	Postbacc College of Pharmacy, Tiruvalla	P21	180091154	ABY THELVAS	Cosmetic Science	Experimental Pharmacology	EXALATION OF ANTIBACTERIAL ACTIVITY OF ALBUM FUSIDISUM L. ETHANOLIC EXTRACT	Anjana George	M.Pharm-Pharmacology		
3	Postbacc College of Pharmacy, Tiruvalla	P21	180091156	ANJANA SHEEL	Pharmacovigilance	Cosmetic science	KNOWLEDGE ATTITUDE AND PRACTICE OF PHARMACY STUDENTS TOWARDS ANTIBACTERIAL STEWARDSHIP	Jude Maran Joshua	M.Pharm-Pharmacy Practice		
4	Postbacc College of Pharmacy, Tiruvalla	P21	180091157	ALAN THELVAN	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION AND COMPARISON OF POLYHERBAL DENTURE CLEANSER PASTES	Deeptha Varkey	M.Pharm-Pharmaceutics		
5	Postbacc College of Pharmacy, Tiruvalla	P21	180091159	ANANIAS	Pharmaceutical Regulatory Sciences	Pharmacovigilance	KNOWLEDGE ATTITUDE AND PRACTICE OF PHARMACY STUDENTS TOWARDS ANTIBACTERIAL STEWARDSHIP	Jude Maran Joshua	M.Pharm-Pharmacy Practice		
6	Postbacc College of Pharmacy, Tiruvalla	P21	180091160	ANISHMILLAU	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF ANTIBACTERIAL HERBAL LIP BALM	Bino K. Thacko	M.Pharm-Pharmaceutical Biotechnology		
7	Postbacc College of Pharmacy, Tiruvalla	P21	180091161	ANSHITHY	Experimental Pharmacology	Pharmaceutical Regulatory Sciences	EVALUATION OF IN VITRO ANTICLER ACTIVITY OF ALBUM FUSIDISUM L. ETHANOLIC EXTRACT	Anjana George	M.Pharm-Pharmacology		
8	Postbacc College of Pharmacy, Tiruvalla	P21	180091163	ANJANA VED	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL SHAMPOO	Jeba B	M.Pharm-Pharmaceutics		
9	Postbacc College of Pharmacy, Tiruvalla	P21	180091164	ANJ A C	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL SENSITIVE PROTECTIVE FACE SERUM	Neelava B	M.Pharm-Pharmaceutics		
10	Postbacc College of Pharmacy, Tiruvalla	P21	180091165	ANJ SHELA	Cosmetic Science	Pharmaceutical Regulatory Sciences	FORMULATION AND EVALUATION OF POLYHERBAL SHAMPOO	Jeba B	M.Pharm-Pharmaceutics		
11	Postbacc College of Pharmacy, Tiruvalla	P21	180091166	ANJILA	Cosmetic Science	Pharmaceutical Marketing	FORMULATION AND EVALUATION OF POLYHERBAL ANTI-ACNE FINE GEL	Jeba Thres Francis	M.Pharm-Pharmaceutics		
12	Postbacc College of Pharmacy, Tiruvalla	P21	180091167	ANJITHYVARADH	Pharmaceutical Marketing	Cosmetic Science	BRANSTING AND DELIVERY AND COMPARATIVE STUDY OF HERBAL NAIL ENGINERS	Bino K. Thacko	M.Pharm-Pharmaceutical Biotechnology		
13	Postbacc College of Pharmacy, Tiruvalla	P21	180091168	ANJATHYVARADH	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL ANTIMICROBIAL CREAM	Jeba Thres Francis	M.Pharm-Pharmaceutics		

15	Pushpagan College of Pharmacy, Tiruvalla	P21	180091170	DEEPA SURESH	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF ANTIHERPESIAL CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	
16	Pushpagan College of Pharmacy, Tiruvalla	P21	180091171	DIVYA MARIA SAJAN	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF HERBAL HAIR CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	
17	Pushpagan College of Pharmacy, Tiruvalla	P21	180091172	EMMANUEL GEORGE	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND COMPARISON OF POLYHERBAL DENTURE CLEANSER PASTES.	Deepthi Mathew	M Pharm-Pharmaceutics	
18	Pushpagan College of Pharmacy, Tiruvalla	P21	180091173	FIRHA K M	Pharmaceutical Marketing	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL FACEWASH GEL.	Deepthi Mathew	M Pharm-Pharmaceutics	
19	Pushpagan College of Pharmacy, Tiruvalla	P21	180091175	HARSHIKA SREEDHAR	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF HERBAL HAIR CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	
20	Pushpagan College of Pharmacy, Tiruvalla	P21	180091176	HINDAJ	Pharmaceutical Marketing	Cosmetic Science	DEVELOPMENT AND ASSESSMENT OF POLYHERBAL HAIR GEL WITH AST-DANDRUFF ACTIVITY	Deepthi Mathew	M Pharm-Pharmaceutics	
21	Pushpagan College of Pharmacy, Tiruvalla	P21	180091177	HEENA S	Pharmaceutical Marketing	Cosmetic Science	TRANS-UCAL DREG DELIVERY A COMPARATIVE STUDY OF HERBAL-NAIL LACQUERS	Deepthi Mathew	M Pharm-Pharmaceutical Biotechnology	
22	Pushpagan College of Pharmacy, Tiruvalla	P21	180091179	HESS THOMAS	Pharmaceutical Marketing	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL FACEWASH GEL	Deepthi Mathew	M Pharm-Pharmaceutics	
23	Pushpagan College of Pharmacy, Tiruvalla	P21	180091180	HISSA K NINAN	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF HERBAL HAIR CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	
24	Pushpagan College of Pharmacy, Tiruvalla	P21	180091181	JANAN MATHEW	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND COMPARISON OF POLYHERBAL DENTURE CLEANSER PASTES.	Deepthi Mathew	M Pharm-Pharmaceutics	
25	Pushpagan College of Pharmacy, Tiruvalla	P21	180091182	KAVYA PANKAJER K	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF HERBAL HAIR CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	
26	Pushpagan College of Pharmacy, Tiruvalla	P21	180091183	LALYA MADHA JAMES	Cosmetic Science	Pharmaceutical Regulatory Sciences	FORMULATION AND EVALUATION OF POLYHERBAL SHAMPOO	Deepthi Mathew	M Pharm-Pharmaceutics	
27	Pushpagan College of Pharmacy, Tiruvalla	P21	180091184	MANU K. ANIL	Pharmaceutical Marketing	Cosmetic Science	FORMULATION AND COMPARISON OF POLYHERBAL DENTURE CLEANSER PASTES	Deepthi Mathew	M Pharm-Pharmaceutics	
28	Pushpagan College of Pharmacy, Tiruvalla	P21	180091185	STHARIBHINJA SURESH	Cosmetic Science	Pharmaceutical Regulatory Sciences	FORMULATION AND EVALUATION OF POLYHERBAL ANTIHERPESIAL CREAM	Deepthi Mathew	M Pharm-Pharmaceutics	

40	Pushpaign College of Pharmacy, Tiruvalla	P21	180091187	MEGHANAI ANBATHI	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF ANTIMICROBIAL CREAM	Sreejaya B	M.Pharm- Pharmaceutics	
31	Pushpaign College of Pharmacy, Tiruvalla	P21	180091188	NEELAMMAL THEKKETTAN M. J. DEEPI	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL SUN PROTECTIVE FACE SERUM	Sreejaya B	M.Pharm- Pharmaceutics	
32	Pushpaign College of Pharmacy, Tiruvalla	P21	180091189	NAJILA BANU	Cosmetic Science	Pharmaceutical Regulatory Sciences	FORMULATION AND EVALUATION OF POLYHERBAL SUN PROTECTIVE FACE SERUM	Sreejaya B	M.Pharm- Pharmaceutics	
33	Pushpaign College of Pharmacy, Tiruvalla	P21	180091191	N.G.GOPRANATH	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF ANTIMICROBIAL HERBAL LIP BALM	Biney K. Chacko	M.Pharm- Pharmaceutical Biotechnology	
34	Pushpaign College of Pharmacy, Tiruvalla	P21	180091192	NEEHEESH TITUS	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL SHAMPOO	Jisha B	M.Pharm- Pharmaceutics	
35	Pushpaign College of Pharmacy, Tiruvalla	P21	180091193	NEELISHA RUCHA PHILIP	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL ANTIMICROBIAL CREAM	Lipij, Fresia Francis	M.Pharm- Pharmaceutics	
36	Pushpaign College of Pharmacy, Tiruvalla	P21	180091194	SHARVY ROSE MATHEW	Pharmaceutical Regulatory Sciences	Cosmetic Science	DEVELOPMENT AND ASSESSMENT OF POLYHERBAL HAIR GEL WITH ANTI-DANDRUFF ACTIVITY	Sreejaya B	M.Pharm- Pharmaceutics	
37	Pushpaign College of Pharmacy, Tiruvalla	P21	180091195	NISHAMOL SAMI	Pharmaceutical Marketing	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL SUN PROTECTIVE FACE SERUM	Sreejaya B	M.Pharm- Pharmaceutics	
38	Pushpaign College of Pharmacy, Tiruvalla	P21	180091196	REEMIA K RUTHI	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL FACEWASH GEL	Sreejaya B	M.Pharm- Pharmaceutics	
39	Pushpaign College of Pharmacy, Tiruvalla	P21	180091198	RIYA V ABRAHAM	Pharmaceutical Regulatory Sciences	Cosmetic Science	DEVELOPMENT AND ASSESSMENT OF POLYHERBAL HAIR GEL WITH ANTI-DANDRUFF ACTIVITY	Deeptha Mathew	M.Pharm- Pharmaceutics	
40	Pushpaign College of Pharmacy, Tiruvalla	P21	180091199	RESHMA ABHITHA RAVITHIR	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION AND COMPARISON OF POLYHERBAL DENTIFRICE CLEANSER PASTES	Sreejaya B	M.Pharm- Pharmaceutics	
41	Pushpaign College of Pharmacy, Tiruvalla	P21	180091200	SARATHI P JOYAN	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION AND COMPARISON OF POLYHERBAL DENTIFRICE CLEANSER PASTES	Deeptha Mathew	M.Pharm- Pharmaceutics	

43	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091202	SANDYA DEEJ	Pharmaceutical Regulatory Sciences	Cosmetic Science	POLYHERBAL ANTI-ACNE FACIAL GEL	Liby Treasa	M.Pharm-Pharmaceutics	
44	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091203	SHAHANA SHAJI	Cosmetic Science	Pharmaceutical Regulatory Sciences	DEVELOPMENT AND ASSESSMENT OF POLYHERBAL HAIR GEL WITH ANTI-DANDRUFF ACTIVITY	Sreekavya B	M.Pharm-Pharmaceutics	
45	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091204	SHERIN ANN MATHEW	Pharmacovigilance	Pharmaceutical Marketing	KNOWLEDGE, ATTITUDE, AND PRACTICE OF PHARMACY STUDENTS TOWARDS ANTIMICROBIAL STEWARDSHIP	Julie Mariam Joshua	M.Pharm-Pharmacy Practice	
46	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091205	SIBERY VARGHISE	Cosmetic Science	Pharmaceutical Regulatory Sciences	FORMULATION AND EVALUATION OF POLYHERBAL ANTI-ACNE FACE GEL	Liby Treasa	M.Pharm-Pharmaceutics	
47	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091206	SIBOLDA MATHEW	Pharmacovigilance	Pharmaceutical Regulatory Sciences	ASSESSMENT OF KNOWLEDGE AND PERCEPTION ABOUT ADVERSE DRUG REACTION REPORTING AND PHARMACOVIGILANCE AMONG PHARMACY STUDENTS	Archana Vija	M.Pharm-Pharmacy Practice	
48	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091207	SINCT SAI	Pharmaceutical Marketing	Pharmaceutical Regulatory Sciences	EVALUATING THE EFFECTIVENESS OF CURRENT OUT OF SPECIFICATION INVESTIGATION TECHNIQUES AND PROCEDURES IN PREVENTING BATCH FAILURES	Deepthi Mathew	M.Pharm-Pharmaceutics	
49	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091208	SINEHA MATHEW	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL FACEWASH GEL	Deepthi Mathew	M.Pharm-Pharmaceutics	
50	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091209	SINA MERLIN VARGHISE	Pharmaceutical Regulatory Sciences	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL FACEWASH GEL	Deepthi Mathew	M.Pharm-Pharmaceutics	
51	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091211	SIBIMARJA DEEJ	Pharmaceutical Regulatory Sciences	Cosmetic Science	TRANSNIGUAL DRUG DELIVERY A COMPARATIVE STUDY OF HERBAL NAIL LAQUERS	Bincy K Chacko	M.Pharm-Pharmaceutical Biotechnology	
52	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091206	SIBELMA SIBOLDA	Pharmaceutical Regulatory Sciences	Cosmetic Science	DEVELOPMENT AND ASSESSMENT OF POLYHERBAL HAIR GEL WITH ANTI-DANDRUFF ACTIVITY	Sreekavya B	M.Pharm-Pharmaceutics	

53	Pushpagiri College of Pharmacy, Tiruvalla	P21	170091348	AISWARYA RAVLENDRAN	Pharmaceutical Regulatory Sciences	O.C and Standardisation of Herbs	FORMULATION AND EVALUATION OF A POLYHERBAL SKINCARE CREAM	Anju A Varghese	M Pharm- Pharmacognosy	
54	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091210	S RAHUMATH	Pharmaceutical Marketing	Cosmetic Science	TRANSUNGUAL DRUG DELIVERY- A COMPARATIVE STUDY OF HERBAL NAIL LACQUERS	Himesh K Chacko	M Pharm- Pharmaceutical Biotechnology	
55	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091155	ADITHY SUNIL	Pharmaceutical Regulatory Sciences	Pharmacovigilance	ASSESSMENT OF KNOWLEDGE AND PERCEPTION ABOUT ADVERSE DRUG REACTION REPORTING AND PHARMACOVIGILANCE AMONG PHARMACY STUDENTS	Archana Vair	M Pharm- Pharmacy Practice	
56	Pushpagiri College of Pharmacy, Tiruvalla	P21	180091158	ANAGHA M SHAJI	Pharmaceutical Regulatory Sciences	Pharmacovigilance	ASSESSMENT OF KNOWLEDGE AND PERCEPTION ABOUT ADVERSE DRUG REACTION REPORTING AND PHARMACOVIGILANCE AMONG PHARMACY STUDENTS	Archana Vair	M Pharm- Pharmacy Practice	
57	Pushpagiri College of Pharmacy, Tiruvalla	P21	170091374	MARIYA ROSE JOHNSON	Pharmaceutical Marketing	Cosmetic Science	FORMULATION AND EVALUATION OF POLYHERBAL ANTI-ACNE FACE GEL	Lily Treza Francis	M Pharm- Pharmaceutics	