JHARKHAND Rai University
RANCHI

MODEL PAPER

1st Year Examination, June-2025

Program: D. Pharm.
Year: 1st Year
Course: Pharmaceutical Chemistry
Course Code: ER20-12T

SECTION II

Short Answer type Question **(3 marks each)**

Unit-I

1. Define limit test and explain its importance in pharmaceutical chemistry.
2. Describe the principle and procedure of the limit test for sulphates.
3. Differentiate between accuracy and precision with examples.
4. List the sources and effects of impurities in pharmaceutical substances.
5. Write about acid-base titration with an example.
6. What is complexometric titration? Mention its significance.

Unit-II

1. Name any two antacids and mention their storage conditions.
2. Write the uses and storage conditions of ferrous sulphate and ferric ammonium citrate.
3. What are the pharmaceutical applications of hydrogen peroxide and boric acid?
4. Write short notes on medicinal gases used in pharmacy.
5. Draw the structure of **Gabapentin**. Write its IUPAC name and chemical class.
6. Give the IUPAC name and structure of **Carbamazepine**. Mention its use and brand.

Unit-III

1. Write the chemical structure and name of Fluoxetine. Classify it and mention dosage form.
2. Draw the structure of Diclofenac sodium. Provide its chemical name and formulation.
3. Mention the structure and IUPAC name of Quetiapine. List its therapeutic class and use.
4. Write the IUPAC name, structure, and classification of Topiramate.
5. Draw the structure of Amlodipine. Mention its use, classification.
6. What is the principle of redox titration? Mention one drug analyzed by this method.

Unit-IV

1. Write pharmacological uses, and dosage forms of Phenytoin Sodium and Valproic acid.
2. Compare uses, structure, and formulation of Risperidone and Haloperidol.
3. Write uses, structure, and dosage form of Ketoconazole and Fluconazole.
4. Write therapeutic use, and formulations of Isosorbide dinitrate and Nifedipine.
5. Give uses and formulation of Bedaquiline and Delamanid. Add their classification.
6. Mention indications, formulation types, and structure of Amoxicillin and Cloxacillin.
7. Give therapeutic uses, and dosage forms of Glibenclamide and Pioglitazone.
8. Compare Ibuprofen and Aceclofenac in terms of structure, and class.
9. Give pharmaceutical formulations and brand names of Azithromycin, Erythromycin, and Clindamycin.
10. Write structure, IUPAC name, class, and formulation of Methotrexate and Fluorouracil.

SECTION III

Long Answer Type Question (5 marks each)

Unit-I

1. What are impurities in pharmaceutical substances? Explain sources, effects, and methods of removal.
2. Write in detail the principle and procedure of limit tests for chlorides, sulphates, iron, and arsenic.
3. Discuss the types of errors in pharmaceutical analysis. How do they affect accuracy and precision?
4. Write a detailed note on gravimetric analysis with one pharmaceutical application.
5. Explain the principle and procedure of acid-base and redox titrations with pharmaceutical examples.
6. Describe the principle of non-aqueous titration. Name two drugs analyzed by this method.

Unit-II

7. Classify antacids and discuss their chemistry, storage, and formulations with examples.
8. Write the chemical formula, structure (if applicable), uses, and storage of any four haematinics.
9. Write a short note on the composition, chemical action, and storage of topical agents.
10. Explain the pharmaceutical uses of medicinal gases. Give examples with storage requirements.
11. Discuss the pharmaceutical applications and safety aspects of hydrogen peroxide and potassium permanganate

12. Explain the nomenclature rules for heterocyclic compounds with two examples from the syllabus.
13. Write the structure, IUPAC name, class, and use of Diazepam, Phenytoin, and Fluoxetine.
14. Classify sedatives, hypnotics, and antidepressants based on structure. Give two examples each.

Unit-III

15. Classify sympathomimetic and anti-adrenergic drugs. Explain with structures and Chemical name.

16. Write short notes on cholinergic and anticholinergic drugs with structures and clinical use.
17. Discuss the structure, IUPAC name, and use of Propranolol and Atenolol.
18. Classify anti-arrhythmic and anti-anginal drugs with suitable structures and formulations.
19. Classify diuretics with storage and stability conditions and write the structure of Furosemide and Spironolactone.

Unit-IV

20. Compare sulfonylureas and biguanides. Write the structure, and formulation of Metformin and Glimepiride.
21. Discuss the chemical structure, uses, and stability of Celecoxib and Piroxicam.
22. Write the classification of NSAIDs. Describe the structure and mechanism of action of Diclofenac and Paracetamol.
23. Classify antifungals. Write the structure, IUPAC name, and uses of Ketoconazole and Fluconazole.
24. Describe the structure, IUPAC name, and formulation of Methotrexate and Cyclophosphamide. Mention their class and indications.
25. Compare INH and Rifampicin: structure, use, and classification.

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Disclaimer: - This is a Model Paper. The Question in End semester examination will differ from the Model Paper. This Model paper is meant for practice only.