

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: B. PHARMACY
BRANCH: PHARMACY**

**SEMESTER: IV
SESSION: SP2023**

SUBJECT: BP402T MEDICINAL CHEMISTRY I

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
 2. Before attempting the question paper, be sure that you have got the correct question paper.
 3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
 4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.
-

PART-I

Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

- A. List few drugs of antiquity with their medicinal use.
- B. Define bioisostere as per Grimm's hydride theory
- C. What is the difference between log P and log D?
- D. Explain Esson-Steadman triple point attachment theory.
- E. Explain Ing's five atom rule.
- F. Define sedatives and hypnotics.
- G. Define general anaesthetics.
- H. Write the structure and identify the drug with its therapeutic uses for the given IUPAC name:
 - (a) [3-(dimethylcarbamoyloxy)phenyl]-trimethylazanium bromide
 - (b) 2-(2,3-dimethylanilino)benzoic acid
- I. Draw the structure of the following drugs, number them and provide the IUPAC nomenclature for the following:
 - (a) Ipratropium bromide
 - (b) Chlordiazepoxide
- J. List the medicinal uses of opioid analgesics.

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. With suitable example explain the monovalent bioisosteric replacement.
- Q3. Write a note on biological function of H-bond.
- Q4. Discuss the factors determining the selectivity of phenylethylamine class of sympathomimetics.
- Q5. Enumerate the synthetic pathway for the preparation of propranolol.
- Q6. Write a note on anticholinesterase inhibitors and their medicinal uses.
- Q7. Enumerate the synthetic pathway for the preparation of Dicyclomine. Provide the IUPAC nomenclature, mode of action, and therapeutic uses.
- Q8. Discuss the metabolic pathway for chlordiazepoxide.
- Q9. Briefly discuss on the ideal characteristics of General anaesthetics.
- Q10. Enumerate the synthesis of fentanyl.

PART-III

Long Answers

(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. In detail discuss the SAR of phenothiazine class of antipsychotic agents.
- Q12. Write the synthesis for the following drugs:
 - (a) NSAID from arylpropionic acid class
 - (b) Antiepileptic from pyrrolidine-2,5-dione class
- Q13. Write the synthesis of the following drugs:
 - (a) Salbutamol
 - (b) Phenobarbitone
 - (c) Ketamine