BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(End Sem Exam)

CLASS: BPHARM **SEMESTER: IV**
BRANCH: PHARMACY **SESSION: SP2025**

SUBJECT: BP402T MEDICINAL CHEMISTRY I

TIME: 3.00 Hours **FULL MARK: 75**

PART I

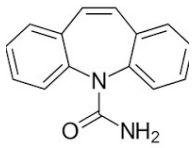
Objective type questions (Answer all questions) 20 marks

1. Fill in the blanks: 5 x 2 = 10

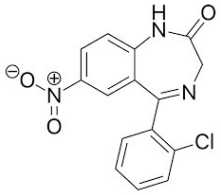
a) A _____ moiety, with an amino group separated from phenyl group by two carbons, is necessary for the activity.
b) _____ is a competitive inhibitor of tyrosine hydroxylase, which is involved in the hydroxylation of tyrosine
c) _____ is synthesised in the nerve terminal from choline.
d) For maximum activity, the nitrogen has to be _____
e) Depending upon the duration of action, barbiturates have been classified as: _____, _____, _____, and_____-.

2. State True or False: 5 x 1 = 5
   a. When the acetic acid is synthesized in the laboratory, theory of vitalism was challenged for the first time.
   b. Erlenmeyer considered the number and arrangement of electrons in the outermost orbital for grouping isosteres.
   c. Easson-stedman triple point attachment theory refers to hydrogen bonding interaction of acetylcholine with its receptor.
   d. Principle of chelation is responsible for cyanide poisoning.
   e. Lipophilic drugs are having lower volume of distribution.

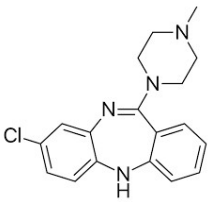
3. Match the following: 5 x 1 = 5

A. 

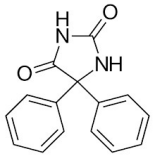
3-chloro-6-(4-methylpiperazin-1-yl)-11*H*-benzo[b][1,4]benzodiazepine

B. 

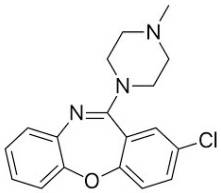
benzo[b][1]benzazepine-11-carboxamide

C. 

8-chloro-6-(4-methylpiperazin-1-yl)benzo[b][1,4]benzoxazepine

D. 

5-(2-chlorophenyl)-7-nitro-1,3-dihydro-1,4-benzodiazepin-2-one

E. 

5,5-diphenylimidazolidine-2,4-dione

PTO

PART II

Short Answers(Answer any seven) 7 x 5 =35 marks

4. Briefly discuss about Grimm's hydride isosteres with suitable example

5. Discuss with suitable example the geometrical isomers and their drug action

6. Explain the SAR of adrenergic agonists

7. Explain the synthesis of (a) Epinephrine and (b) Dopamine

8. Write the structures of (a) Tropicamide, (b) Clidinium bromide and (c) Methantheline bromide

9. Detail out the SAR of barbiturates

10. Explain the synthesis of the following: (a) Phenobarbital and (b) Diazepam

11. Discuss the metabolism of (a) Ethosuximide and (b) Chlorpromazine

12. Enumerate the synthesis of (a) Phenytoin and (b) Chlorpromazine

PART III

Long Answers (Answer any two) 2 x 10 = 20 marks

13. Discuss with suitable examples the way (i) Hydrogen bonding interaction and (ii) Chelation influences drug action.

14. Explain the structural modifications of acetyl choline with two examples from each class of modification.

15. In detail discuss the structure activity relationship of phenothiazine class of antipsychotic agents.
    Note:
    (i) Discussion should be with reference to the general structure and
    (ii) Provide the structure for example drugs

::::::26/04/2025::::::M