



End Term (Even) Semester Examination May-June 2025

Name of the Course and semester: B.Pharm 4th Semester

Roll no.....

Name of Subject: Medicinal Chemistry-I

Subject Code: BP- 402T

Time: 3-hour

Maximum Marks: 75

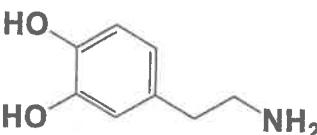
Note:

- (i) This question paper contains three sections
- (ii) All the sections are compulsory

Section-A

MULTIPLE CHOICE QUESTION

20 X 1 = 20 MARKS

| S.No. | CONTENTS | CO'S |
|-------|---|------|
| 1. | Un- ionized form of drugs helps to a) The higher solubility of drug b) Increase the hydrophilicity of drug c) Cross the cell membrane d) Lowers the penetration | CO-1 |
| 2. | Biotransformation is chemical alteration of drug in body that a) Converts polar compounds to non-polar compounds b) Converts non-polar compounds to polar compounds c) Converts polar lipid soluble compounds to non-polar compounds d) Converts non-polar lipid soluble compounds to polar compounds | |
| 3. | The partition coefficient (P) of a drug is defined as the ratio of: a) The drug's solubility in water to its solubility in oil b) The drug's solubility in the stomach to its solubility in the blood c) The drug's absorption rate to its elimination rate d) The drug's binding to plasma proteins to its free form | |
| 4. | Drug metabolism primarily occurs in the: a) Kidney b) Liver c) Stomach d) Intestines | |
| 5. | Enzyme responsible for the termination of action catecholamine a) MAO b) COMT c) Isomerase d) Both a) and b) | CO-2 |
| 6. | Identify the structure  a) Adrenaline b) Nor-Adrenaline c) Catechol d) Dopamine | |



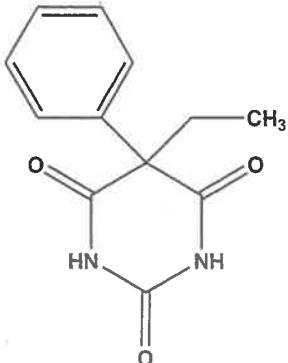
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| | | |
|-----|--|------|
| 7. | The primary neurotransmitter released by adrenergic neurons is: a) Acetylcholine b) Norepinephrine c) Serotonin d) Dopamine | |
| 8. | Which of the following drugs is used for the treatment of asthma and acts as a selective beta-2 adrenergic agonist? a) Dobutamine b) Salbutamol c) Epinephrine d) Naphazoline | |
| 9. | Which of the following is a common therapeutic use of parasympathomimetic agents? a) Increasing heart rate b) Dilating bronchial smooth muscles c) Decreasing gastrointestinal motility d) Constricting pupil size | CO-3 |
| 10. | Which enzyme is responsible for the breakdown of acetylcholine? a) Acetylcholinesterase b) Monoamine oxidase c) Catechol-O-methyltransferase d) Tyrosine hydroxylase | |
| 11. | Nicotinic receptors are located in: a) Postganglionic neurons b) The heart c) Smooth muscle cells d) Skeletal muscles and autonomic ganglia | |
| 12. | The presence of a quaternary nitrogen in parasympathomimetic agents: a) Increases oral bioavailability b) Increases the ability to cross the blood-brain barrier c) Reduces the duration of action d) Increases water solubility | |
| 13. | Below structure belongs to a) Carbamazepine b) Ethosuximide c) Methsuximide d) Phenacemide | CO-4 |



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14. Below structure belongs to



- a) Mephenytoin
- b) Ethotoxin
- c) Phenobarbital
- d) Phenytoin

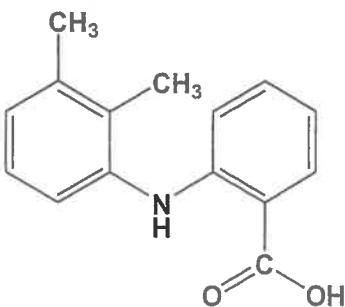
15. Which of the following SAR characteristics is essential for the activity of benzodiazepines?

- a) A fused benzene ring system
- b) Presence of a nitro group
- c) A bulky alkyl group on the nitrogen atom
- d) A chlorine atom attached to the ring

16. Which barbiturate is used to treat seizures and has a long duration of action?

- a) Phenobarbital
- b) Secobarbital
- c) Amobarbital
- d) Butabarbital

17. Below structure belongs to



- a) Phenylbutazone
- b) Pentazocine
- c) Methadone
- d) Mefenamic acid

CO-5



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|-----|---|--|
| 18. | Which of the following is a commonly used inhalation general anesthetic agent? a) Midazolam b) Fentanyl c) Desflurane d) Ketamine | |
| 19. | Which of the following anti-inflammatory agents is known for its ability to treat gout due to its effect on uric acid production? a) Allopurinol b) Indomethacin c) Colchicine d) Sodium salicylate | |
| 20. | Which of the following is a common side effect associated with the use of nonsteroidal anti-inflammatory drugs (NSAIDs)? a) Constipation b) Hypotension c) Gastric irritation d) Sedation | |

Section B

Short Questions: Attempt any seven questions.

7x5 = 35 marks

| S.no. | QUESTIONS | CO's |
|-------|--|------|
| 1. | Discuss the history and development of Medicinal Chemistry. | CO 1 |
| 2. | Give a note on Phase-I metabolism. | CO 1 |
| 3. | Write the detailed SAR of sympathomimetic agents. | CO 2 |
| 4. | Give the synthesis and therapeutic uses of Propranolol. | CO 2 |
| 5. | Define cholinergic receptors and give their distribution. | CO 3 |
| 6. | Give the biosynthesis and catabolism of Acetylcholine. | CO 3 |
| 7. | Differentiate between Sedative and Hypnotics. | CO 4 |
| 8. | Explain the SAR of Benzodiazepines in detail. | CO 4 |
| 9. | What are Dissociative Anesthetics? Give synthesis of any one drug of General Anesthetic. | CO 5 |

Section C

Long questions: Attempt any two questions

2x10 = 20 marks

| S.no. | QUESTIONS | CO's |
|-------|---|------|
| 1 | Explain in detail about the physico-chemical properties of drug in relation to their biological action. | CO 1 |
| 2 | Define Anticonvulsants. Give MOA of Anticonvulsants, synthesis and uses of Phenytoin. | CO 4 |
| 3 | Explain in detail about narcotics and non-narcotics analgesics. | CO 5 |