

Paper Id: 150300

Roll No.

**B.PHARM**  
**(SEMESTER-IV) THEORY EXAMINATION 2018-19**  
**MEDICINAL CHEMISTRY-I**

**Time: 3 Hours**

**Total Marks: 75**

**Note:** Attempt all Sections. If you require any missing data, choose suitably.

**SECTION A**

**1. Attempt all questions in brief. 10 x 2 = 20**

- a. Define partition coefficient and give its applications.
- b. Explain role of ionization towards biological action of drug.
- c. Explain in short biosynthesis of cholinergic neurotransmitters.
- d. Write chemical structures of phenytoin and Ethotoin.
- e. Write chemical structure and uses of Ketamine hydrochloride.
- f. Write differences between Narcotic and non-narcotic analgesics.
- g. Compare benzodiazepines and barbiturates.
- h. Write synthesis of Ethosuximide.
- i. Write chemical structure and mechanism of action for Clozapine.
- j. Define ultra-short acting barbiturates with examples.

**SECTION B**

**2. Attempt any two parts of the following: 2 x 10 = 20**

- a. Define biotransformation. Explain principles of drug metabolism including phase I and phase II pathways.
- b. Write classification, mechanism of action and structure-activity relationship of antipsychotics with suitable examples.
- c. Explain Bioisosterism, types and their role in drug discovery with suitable examples.

**SECTION C**

**3. Attempt any five parts of the following: 5 x 7 = 35**

- a. Stereochemistry contributes towards biological action of drug. Explain with examples.
- b. Write synthesis, mechanism of action and uses of -  
i) Ipratropium bromide, ii) Tolazoline.
- c. Write a note on medicinal chemistry of barbiturates.
- d. Define adrenergic blockers. Explain structure-activity relationship studies and uses of beta blockers.
- e. Write classification of parasympathomimetics with examples and chemical structures.  
Write synthesis of Carbachol.
- f. Write synthesis, mechanism of action and uses of -  
(i) Chlorpromazine hydrochloride, (ii) Carbamazepine.
- g. Write chemical structures, uses of - i) Indomethacin, ii) Valproic acid, iii) Phenacetin,  
iv) Meperidine hydrochloride, v) Sulindac.

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**B PHARM**  
**(SEM-IV) THEORY EXAMINATION 2019-20**  
**MEDICINAL CHEMISTRY – I**

**Time: 3 Hours****Total Marks: 75**

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.  
 2. Any special paper specific instruction.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

- a. Define solubility.
- b. What is ring equivalent bioisosterism.
- c. Write the mode of action of methyldopa.
- d. Write the synthetic route of Phenylephrine.
- e. Define parasympatholytic agents.
- f. Classify cholinesterase inhibitors.
- g. What are the ideal characteristics of sedatives and hypnotics.
- h. Draw the chemical structure of Clonazepam and write mode of action.
- i. Write the synthetic route of halothane.
- j. Write the mode of action of Ultra short acting barbiturates.

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

- a. Explain in detail about isosterism and bioisosterism with suitable examples.
- b. Discuss the SAR beta blocker and write the mode of action synthesis of propranolol.
- c. Write the chemical structure, mode of action, synthesis and use of carbachol and procyclidine.

**SECTION C****3. Attempt any five parts of the following:****7 x 5 = 35**

- a. Discuss the SAR of barbiturate with suitable examples.
- b. Classify anti-inflammatory agents. Discuss the chemical structure mode of action and synthesis of ibuprofen.
- c. Describe geometrical isomerism in relation to affect biological activity.
- d. Discuss in detail about indirect acting sympathomimetic agents.
- e. Classify anticonvulsant drugs and Explain SAR of succinimide. Write the mechanism of action and synthesis of ethosuccimide.
- f. Discuss the SAR of morphine analogues. Write the mechanism of action and synthesis of fentanyl.
- g. Write a short note on dissociative anaesthetics.

PAPER 10-421118

Roll No: L

BPHARM  
(SEM IV) THEORY EXAMINATION 2021-22  
MEDICINAL CHEMISTRY I - THEORY

Total Marks: 75

Time: 3 Hours

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

10 x 2 = 20

- |                                                                                          |
|------------------------------------------------------------------------------------------|
| a. Define metabolism.                                                                    |
| b. Point out the role of partition coefficient in relation to biological action of drug? |
| c. Describe the synthesis of Tolazoline.                                                 |
| d. Give structure and uses of Phenylephrine.                                             |
| e. Discuss cholinergic receptors and their distribution.                                 |
| f. Differentiate anticholinergics and anticholinesterases.                               |
| g. Compare the basic ring structures and mention uses of barbiturate and benzodiazepine. |
| h. Give the MOA and structure of chlorpromazine.                                         |
| i. Discuss the synthesis of drug that causes dissociative anaesthesia.                   |
| j. Name and give structures of any two narcotic antagonists.                             |

SECTION B

2. Attempt any two parts of the following:

2 x 10 = 20

- |                                                                                                      |
|------------------------------------------------------------------------------------------------------|
| a. Summarize about various physicochemical parameters that affect drug action.                       |
| b. Classify sedative and hypnotics. Outline the synthesis, mechanism of action and uses of diazepam. |
| c. Classify NSAIDs. Give the synthesis of Ibuprofen.                                                 |

SECTION C

3. Attempt any five parts of the following:

7 x 5 = 35

- |                                                                                                   |
|---------------------------------------------------------------------------------------------------|
| a. Compare phase I and phase II metabolism and discuss various factors affecting drug metabolism. |
| b. Outline the classification and SAR of sympathomimetics.                                        |
| c. Illustrate the MOA, synthesis and uses of (i) Dicyclomine hydrochloride (ii) Carbachol.        |
| d. Classify anticonvulsants and give synthesis of phenytoin.                                      |
| e. Classify general anaesthetics. Give synthesis of halothane.                                    |
| f. Explain the biosynthesis and catabolism of catecholamines.                                     |
| g. Give synthesis of propranolol and discuss SAR of beta blockers.                                |

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**B.PHARM**  
**(SEM IV) THEORY EXAMINATION 2022-23**  
**MEDICINAL CHEMISTRY-I**

**Time: 3 Hours**

**Total Marks: 75**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.**

**10 x 2 = 20**

- Define Bioisosterism. Give examples.
- Give name and structures of two narcotic antagonists.
- Discuss mechanism of Methohexital sodium.
- What is Cholinesterase reactivator? Write its example and use.
- Write synthesis of Phenytoin.
- Give uses of Tolazoline and Dicyclomine hydrochloride.
- Mention the significance of Ionization and solubility in relation to biological action.
- Enumerate Adrenergic receptors and their distribution.
- Differentiate Phase I and Phase II reactions.
- From which category chlorpromazine drug belongs? Give its structure.

**SECTION B**

**2. Attempt any twoparts of the following:**

**2 x 10 = 20**

- What are Sedatives and Hypnotics? Classify them. Give SAR of Benzodiazepines, and synthesis of Diazepam.
- Classify Narcotic analgesics. Write SAR of Morphine analogues in detail.
- Explain Physicochemical properties in relation to biological action in detail.

**SECTION C**

**3. Attempt any fiveparts of the following:**

**7 x 5 = 35**

- Give uses, mechanism and synthesis of any two: Carbachol / Neostigmine / Salbutamol.
- What are Sympathomimetic agents? Classify them.
- Classify antiinflammatory agents. Discuss the mode of action and synthesis of ibuprofen.
- Write short note on Adrenergic Antagonists.
- Discuss AR of Phenothiazines.
- Write short note on Cholinesterase inhibitors
- Elaborate Drug metabolism principles of Phase I and Phase II.



PAPER ID: 411119

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**BPIARMA**  
**(SEM IV) THEORY EXAMINATION 2023-24**  
**MEDICINAL CHEMISTRY I – THEORY**

**TIME: 3 HRS****M.MARKS: 75**

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

- |    |                                                                                                                                       |
|----|---------------------------------------------------------------------------------------------------------------------------------------|
| a. | Discuss the significance of one physicochemical property of a drug that affects its protein binding in relation to biological action. |
| b. | Give the structure and uses of neostigmine.                                                                                           |
| c. | Give the synthesis of salbutamol.                                                                                                     |
| d. | Give the structure and mechanism of action of any one atypical antipsychotic agent.                                                   |
| e. | Enumerate adrenergic receptors and their distribution.                                                                                |
| f. | Outline the catabolism of acetylcholine.                                                                                              |
| g. | Define bioisosterism and its significance with the help of one example.                                                               |
| h. | Differentiate between anticholinergic and anticholinesterase agents.                                                                  |
| i. | Name any two ultra-short acting barbiturates with uses.                                                                               |
| j. | Illustrate the synthesis and uses of phenytoin.                                                                                       |

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

- |    |                                                                                                                                     |
|----|-------------------------------------------------------------------------------------------------------------------------------------|
| a. | Differentiate between sedatives & hypnotics and classify them. Discuss the mechanism of action of benzodiazepines and barbiturates. |
| b. | Explain phase I and phase II metabolism in detail.                                                                                  |
| c. | Classify NSAIDs along with their mechanism of action. Write the synthesis of methadone.                                             |

**SECTION C****3. Attempt any five parts of the following:****5 x 7 = 35**

- |    |                                                                                                                                           |
|----|-------------------------------------------------------------------------------------------------------------------------------------------|
| a. | Illustrate optical and geometrical isomerism in relation to biological action of drug with suitable examples.                             |
| b. | Discuss the classification and SAR of sympathomimetic agents.                                                                             |
| c. | Classify cholinergic blocking agents. Explain the SAR of cholinolytic agents.                                                             |
| d. | Explain SAR of anticonvulsant agents and synthesis of diazepam.                                                                           |
| e. | Discuss cholinesterase reactivators and narcotic antagonists with their structure, mechanism of action and uses.                          |
| f. | Illustrate the synthesis and uses of propranolol and carbachol.                                                                           |
| g. | How dissociative anaesthetics differs from other general anaesthetics? Discuss about synthesis, mechanism of action and uses of ketamine. |



PAPER ID: 411119

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**BPIARMA**  
**(SEM IV) THEORY EXAMINATION 2023-24**  
**MEDICINAL CHEMISTRY I – THEORY**

**TIME: 3 HRS****M.MARKS: 75**

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

- |    |                                                                                                                                       |
|----|---------------------------------------------------------------------------------------------------------------------------------------|
| a. | Discuss the significance of one physicochemical property of a drug that affects its protein binding in relation to biological action. |
| b. | Give the structure and uses of neostigmine.                                                                                           |
| c. | Give the synthesis of salbutamol.                                                                                                     |
| d. | Give the structure and mechanism of action of any one atypical antipsychotic agent.                                                   |
| e. | Enumerate adrenergic receptors and their distribution.                                                                                |
| f. | Outline the catabolism of acetylcholine.                                                                                              |
| g. | Define bioisosterism and its significance with the help of one example.                                                               |
| h. | Differentiate between anticholinergic and anticholinesterase agents.                                                                  |
| i. | Name any two ultra-short acting barbiturates with uses.                                                                               |
| j. | Illustrate the synthesis and uses of phenytoin.                                                                                       |

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

- |    |                                                                                                                                     |
|----|-------------------------------------------------------------------------------------------------------------------------------------|
| a. | Differentiate between sedatives & hypnotics and classify them. Discuss the mechanism of action of benzodiazepines and barbiturates. |
| b. | Explain phase I and phase II metabolism in detail.                                                                                  |
| c. | Classify NSAIDs along with their mechanism of action. Write the synthesis of methadone.                                             |

**SECTION C****3. Attempt any five parts of the following:****5 x 7 = 35**

- |    |                                                                                                                                           |
|----|-------------------------------------------------------------------------------------------------------------------------------------------|
| a. | Illustrate optical and geometrical isomerism in relation to biological action of drug with suitable examples.                             |
| b. | Discuss the classification and SAR of sympathomimetic agents.                                                                             |
| c. | Classify cholinergic blocking agents. Explain the SAR of cholinolytic agents.                                                             |
| d. | Explain SAR of anticonvulsant agents and synthesis of diazepam.                                                                           |
| e. | Discuss cholinesterase reactivators and narcotic antagonists with their structure, mechanism of action and uses.                          |
| f. | Illustrate the synthesis and uses of propranolol and carbachol.                                                                           |
| g. | How dissociative anaesthetics differs from other general anaesthetics? Discuss about synthesis, mechanism of action and uses of ketamine. |



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Printed Page: 1 of 1

Subject Code: BP402T

**BPHARM**  
**(SEM IV) THEORY EXAMINATION 2024-25**  
**MEDICINAL CHEMISTRY I – THEORY**

**TIME: 3 HRS****M.MARKS: 75**

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

- Define chelation.
- Differentiate between classical and non-classical bioisosterism.
- Write the mode of action of terbutaline.
- Write the biosynthetic pathway of catecholamine.
- Briefly describe the mode of action of prazosin.
- Classify synthetic cholinergic blocking agents.
- Differentiate between sedatives and hypnotics.
- Draw the chemical structure of chlorpromazine and write mode of action
- Write the synthetic route of mefenamic acid
- Briefly describe dissociative anesthetics.

**SECTION B****2. Attempt any two parts of the following****2 x 10 = 20**

- Define the physicochemical properties of molecules. Discuss about partition coefficient in relation to biological action.
- Discuss the SAR of sympathomimetic agents and write the mode of action synthesis of salbutamol
- Describe the SAR of benzodiazepines. Discuss the mechanism of action and synthesis of diazepam.

**SECTION C****3. Attempt any five parts of the following****7 x 5 = 35**

- Discuss the SAR of parasympathomimetic agents with suitable examples.
- Classify NSAIDs. Discuss the chemical structure mode of action and synthesis of mefenamic acid.
- Describe geometrical isomerism in relation to affect biological activity.
- Define epilepsy. Classify antiepileptic agents and the chemical structure of each class.
- Describe in detail about general anesthetic agents with examples.
- Discuss the SAR of opioid analgesics.
- Write a short note on synthesis and catabolism of acetylcholine.



Paper ID : 261772

Printed Page: 1 of

Subject Code:BP402T

Roll No:

**BPHARM**  
**(SEM. IV) THEORY EXAMINATION 2025-26**  
**MEDICINAL CHEMISTRY I – THEORY**

**TIME: 3 HRS****M.MARKS: 75****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

|    |                                     |
|----|-------------------------------------|
| a. | Define bioisosterism.               |
| b. | Name any two $\beta$ -blockers.     |
| c. | What are indirect sympathomimetics? |
| d. | What is a benzodiazepine?           |
| e. | Define general anesthetics.         |
| f. | What are NSAIDs?                    |
| g. | Define anticonvulsants.             |
| h. | What are sedatives?                 |
| i. | What is valproic acid?              |
| j. | What is protein binding?            |

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

|    |                                                                                                          |
|----|----------------------------------------------------------------------------------------------------------|
| a. | What are Sedatives and Hypnotics? Classify them. Give SAR of Benzodiazepines, and synthesis of Diazepam. |
| b. | Define and classify sympathomimetic agent. Write synthesis of salbutamol and phenylephrine.              |
| c. | Define and classify general anesthetics. Write synthesis and mechanism of action ketamine hydrochloride. |

**SECTION C****3. Attempt any five parts of the following:****7 x 5 = 35**

|    |                                                                                                |
|----|------------------------------------------------------------------------------------------------|
| a. | Give uses, mechanism and synthesis of any two: Carbachol / Neostigmine / Salbutamol.           |
| b. | Define Antipsychotics and discuss SAR of phenothiazines.                                       |
| c. | Write short note on Cholinesterase inhibitors.                                                 |
| d. | Elaborate Drug metabolism principles of Phase I and Phase II.                                  |
| e. | Classify NSAIDS along with their mechanism of action. Write the synthesis of fentanyl citrate. |
| f. | Define & classify anticonvulsants. Write synthesis of carbamazepine.                           |
| g. | Discuss biosynthesis and catabolism of acetylcholine.                                          |