

Time : 3 Hours]

[Total Marks : 75

Instructions to the Students:

- 1.All questions are compulsory.
- 2.Draw diagrams / figures wherever necessary
- 3.Figures to right indicate full marks

- Q.1 Attempt any FIVE questions of the following (5 x 2) = 10
- | | |
|---|---|
| A) What types of solvents are used in UV Spectroscopy & why? | 2 |
| B) What are molecular vibrations? Explain types of molecular vibrations. | 2 |
| C) Give the difference between paper and thin layer chromatography. | 2 |
| D) Write the vibrational frequency of alcohol, carboxyl group, and amide. | 2 |
| E) What are different interferences in flamephotometry? | 2 |
| F) Write the applications of Atomic Absorption spectroscopy. | 2 |
| G) What is Quenching? Give example. | 2 |
- Q.2 Attempt any FOUR questions of the following (5 x 4) = 20
- | | |
|---|---|
| A) Explain Factors affecting on vibrational frequencies. | 4 |
| B) Discuss McLafferty rearrangement reactions in MASS with reactions. | 4 |
| C) Explain different derivatisation techniques used in GC. | 4 |
| D) Explain types of medical devices and their applications in detail. | 4 |
| E) Write a note on Zone electrophoresis. | 4 |
| F) Give the detailed applications of X-Ray crystallography. | 4 |
- Q.3 Attempt any THREE questions of the following (15 x 3) = 45
- | | |
|---|----|
| A) What is chemical shift in NMR? Write the factors affecting on chemical shift in detail with suitable examples. | 15 |
| B) Discuss Principle and instrumentation of FTIR in detail with advantages of FTIR over Dispersive IR. | 15 |
| C) Give principle, different types of ionization techniques and analyzers used in MASS. | 15 |
| D) Explain in detail Lamberts- Beers law with its deviations. Give instrumentation and applications of Double beam UV Spectrophotometer with neat labelled diagram. | 15 |
| E) Discuss principle, instrumentation and applications of HPLC in detail. | 15 |

End Semester Examination – Winter 2024

Course :Master of Pharmacy(Pharmaceutical Chemistry) Branch : Pharmacy

Semester : SEMESTER - 1

Subject Code & Name: MPC102T-ADVANCED ORGANIC CHEMISTRY I

Date:

Time : 3 Hours]

[Total Marks : 75

Instructions to the Students:

1. All questions are compulsory.
2. Draw diagrams / figures wherever necessary
3. Figures to right indicate full marks

Q.1 Attempt any FIVE questions of the following (5 x 2) = 10

- A) Define the term with suitable example- Synthons, Synthetic Agent.
- B) Define Saytzeff's rule along with example.
- C) What do you mean by carbanions?
- D) What is Ozonolysis? Give one example of Ozonolysis reaction.
- E) Write on Ugi reaction.
- F) Write the Application of Aluminium isopropoxide?
- G) Write about Dieckmann Reaction.

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Q.2 Attempt any FOUR questions of the following (5 x 4) = 20

- A) Give details Formation, types, Chemical reaction, stability and detection of carbocation.
- B) Write the mechanism and Stereochemistry of E1 and E2 reaction.
- C) What are Free radicals? Explain their formation & stability.
- D) What is C-X and C-C Disconnection? Explain the role of protecting groups in organic synthesis.
- E) Give detail account of Baeyer-Villiger oxidation.
- F) Discuss carbenes and Nitrenes with suitable examples.

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Q.3 Attempt any THREE questions of the following (15 x 3) = 45

- A) Describe Brook rearrangement, Mitsunobu reaction, Mannich reaction and Ullmann coupling reactions.
- B) Define protection and deprotection and discuss the protection of Carbonyl Group and Amino group.
- C) Discuss reaction, mechanism and stereochemistry of SN1 & SN2 reaction.
- D) What is mean by heterocyclic Chemistry and Describe Knorr Pyrazole Synthesis, Pinner Pyrimidine Synthesis and Combes Quinoline Synthesis.
- E) Define retrosynthesis? What are the guidelines used for disconnection in synthon approach.

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY LONERE-RAIGAD-402103

End Semester Examination – Winter 2024

Course :Master of Pharmacy(Pharmaceutical Chemistry) Branch : Pharmacy

Semester : SEMESTER - 1

Subject Code & Name: MPC103T-ADVANCED MEDICINAL CHEMISTRY

Date:

[Total Marks : 75]

Time : 3 Hours]

Instructions to the Students:

- 1.All questions are compulsory.
- 2.Draw diagrams / figures wherever necessary
- 3.Figures to right indicate full marks

- Q.1 Attempt any FIVE questions of the following (5 x 2) = 10
- A) Define and classify Bioisosters. 2
 - B) What is role of chirality in drug action? 2
 - C) Define receptors & enlist the types of receptors. 2
 - D) Classify Psychoactive drugs. 2
 - E) Write a note on Chemistry of prostaglandins. 2
 - F) Define adrenergic agents & draw the structure of adrenergic agent. 2
 - G) Elaborate Causes for drug resistance. 2
- Q.2 Attempt any FOUR questions of the following (5 x 4) = 20
- A) Explain the strategies used to combat drug resistance in antibiotics. 5
 - B) Explain antineoplastic agents with mechanism of action. 5
 - C) Describe in detail anticonvulsant drugs. 5
 - D) Explain chemistry of leukotrienes and thromboxones. 5
 - E) What is stereochemistry? Add note on enantioselectivity case studies in drug ADME with example. 5
 - F) Discuss in detail the rational design of non-covalently and covalently binding enzyme inhibitors. 5
- Q.3 Attempt any THREE questions of the following (15 x 3) = 45
- A) Define drug discovery & explain the stages of drug discovery in detail. 15
 - B) Give therapeutic values of peptidomimetics? Explain designing of peptidomimetics by manipulation of the amino acids. 15
 - C) Define & classify Antihypertensive agent. Explain SAR, MOA & uses of each class. 15
 - D) Describe in detail Prodrug design and Analog design. 15
 - E) What are enzyme inhibitors? Explain enzyme kinetics & role of EI in basic research. 15

End Semester Examination – Winter 2024

Course :Master of Pharmacy(Pharmaceutical Chemistry) Branch : Pharmacy

Semester : SEMESTER - 1

Subject Code & Name: MPC104T-CHEMISTRY OF NATURAL PRODUCTS

Date:

Time : 3 Hours]

[Total Marks : 75

Instructions to the Students:

- 1.All questions are compulsory.
- 2.Draw diagrams / figures wherever necessary
- 3.Figures to right indicate full marks

Q.1 Attempt any FIVE questions of the following (5 x 2) = 10

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|---|---|
| A) Write classification of alkaloids with at least one example | 2 |
| B) Draw structure of Morphine | 2 |
| C) Draw structure of testosterone and write its uses | 2 |
| D) Draw structure and write uses of clarithromycin | 2 |
| E) Write about active constituents of Phyllanthus niruri | 2 |
| F) Write about active constituents of Gymnema sylvestre | 2 |
| G) Write classification of terpenoids with at least one example | 2 |

Q.2 Attempt any FOUR questions of the following (5 x 4) = 20

- | | |
|--|---|
| A) Write short notes on stereochemistry of Borneol. | 4 |
| B) Explain how you will elucidate the N-Methyl group present in morphine? | 4 |
| C) Explain the chemistry of Digitoxin. | 4 |
| D) Explain in detail about the Resistance to β -lactam Antibiotics. | 4 |
| E) Write short notes on polypeptide Antibiotics. | 4 |
| F) Explain nature and position of side chain with evidence in cholesterol. | 4 |

Q.3 Attempt any THREE questions of the following (15 x 3) = 45

- | | |
|---|----|
| A) Explain the general methods in structural elucidation of alkaloids. | 15 |
| B) a) What is in-vitro Evolution? How it is useful in drug discovery? b) How Phage display can be used as identification of therapeutic novel peptides? | 15 |
| C) a) Write short notes on macrolides. b) Explain the structural constitution of Rutin. | 15 |
| D) Explain various steps involved in Structural elucidation of Triterpenoids. | 15 |
| E) Explain about Drug targets with respect to Receptor and enzymes. | 15 |