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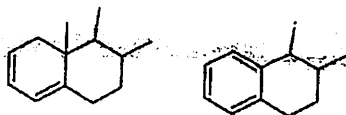
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M. Pharm.**(Pharmaceutics / Pharmacology / Pharmaceutical Chemistry)****1st Semester Examination****Modern Pharmaceutical Analytical Techniques***Time : 3 Hours]**[Max. Marks : 75***Note:** 1. Attempt all questions

2. Each question carries equal marks.

1. Shorts answer: Attempt any FIVE questions [3×5=15]

- (a) Explain Fragmentation pattern in Mass spectroscopy.
- (b) Discuss the working of MALDI analyser.
- (c) What is spectroscopy and give its application?
- (d) Using woodward's rule predict the wavelength of maximum absorption for each of the following compounds:



- (e) What are the Chromatographic parameters?
 - (f) What are the factors affecting column efficiency in Adsorption chromatography?
 - (g) Give the principle of Gel electrophoresis.
- 2. Shorts answer: Attempt any FIVE questions [3×5=15]**
- (a) Discuss the application of Chromatography technique.
 - (b) How many normal vibration modes possible in the linear molecule?

(c) Why Tetramethylsilane $[(CH_3)_4Si]$ used as a internal standard in NMR spectroscopy?

(d) What is Mc Lafferty rearrangement?

(e) What is the Principle of mass spectroscopy?

(f) Discuss the factors affecting chemical shift.

(g) Explain shielding and De-shielding effect with examples.

3. Long answer: Attempt any TWO questions [7.5x2=15]

(a) Give the Instrumentation of IR Spectroscopy.

(b) What type of electronic transition possible in U.V. spectroscopy?

(c) Explain principle and application of Flame emission spectroscopy.

4. Long answer: Attempt any TWO questions [7.5x2=15]

(a) Explain following terms with suitable example:

(a) Red Shift (b) Blue Shift (c) Auxochrome

(b) Write the type of detectors used in Infrared spectroscopy.

(c) Explain modes of vibrations of atoms in polyatomic molecule.

5. Very Long answer: Attempt any ONE question [15x1=15]

(a) Write in brief instrumentation and Pharmaceutical application of Infra red spectroscopy.

(b) Write short notes on Immunological assay.

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M. Pharm. (Pharmaceutical Chemistry)**1st Semester Examination****Advanced Organic Chemistry -I***Time : 3 Hours]**[Max. Marks : 75***Note:** 1. Attempt all questions

2. Each question carries equal marks.

1. Attempt any FIVE questions **[3×5=15]**

- (a) Importance of Baeyer-Villiger oxidation
- (b) Discuss formation of carbocation
- (c) Importance of Aluminiumisopropoxide,
- (d) Synthetic applications of Mitsunobu reaction
- (e) Stability of carbocations
- (f) Discuss SN2 reaction
- (g) Discuss N-bromosuccinamide synthetic uses

2. Attempt any FIVE questions **[3×5=15]**

- (a) Discuss Ozonolysis
- (b) Synthetic applications of Brook rearrangement
- (c) Discuss Sandmeyer reaction along with synthetic applications.
- (d) Discuss protection of carbonyl group.
- (e) Discuss free radicals with examples.
- (f) SN 1 reaction
- (g) Synthetic applications of Mannich reaction.

3. Attempt any TWO questions **[7.5x2=15]**

- (a) Discuss the mechanism of Suzuki reaction, along with synthetic applications.

- (b) Discuss Sandmeyer reaction along with mechanism and synthetic applications.
- (c) Types of reaction mechanisms and their relative reactivity and orientations.

4. Attempt any TWO questions [7.5x2=15]

- (a) Discuss dicyclohexylcarbodiimide, Wilkinson reagent and Witting reagent along with synthetic applications.
- (b) Discuss nucleophilic substitution reactions in detail.
- (c) Discuss protection of functional groups in detail.

5. Attempt any ONE question [15x1=15]

- (a) Discuss organic intermediates in detail.
- (b) Discuss retrosynthesis in detail.

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M. Pharm
Pharmaceutical Chemistry
1st Semester Examination
ADVANCED MEDICINAL CHEMISTRY

Time : 3 Hours]

[Max. Marks : 75

Note: 1. Attempt all questions. All questions are compulsory.

1. **Shorts answer: Attempt any FIVE questions** [3×5=15]
 - (1) Discuss role of stereoisomer in drug design.
 - (2) What are the Genetic Principle of drug resistance.
 - (3) What is transducer mechanism?
 - (4) Describe the sources of Lead compound.
 - (5) Write applications of peptidomimetics.
 - (6) Explain causes of drug resistance.
 - (7) Differentiate between classical and Non classical bioisosters.
2. **Write synthesis routes and giving detail mechanism for following (any two)** [7.5x2=15]
 - (a) Captopril b) Methotrexate c) Renitidine
3. **Long answer: Write short notes on any two** [7.5x2=15]
 - (a) Rationale of prodrug design.
 - (b) Computer aided drug design.
 - (c) High throughput Screening.
4. **Long answer: Attempt any two questions** [7.5x2=15]
 - (a). Discuss SAR, synthesis, mode of action and uses of Acetyl choline..
 - (b). Discuss combinatorial chemistry.
Sketch out the synthetic strategic for any one of the following:
a) Diazepam b) acetylcholine
5. **Very Long answer: Attempt any one question:** [15x1=15]
 - (a) Write in brief Stages of Drug Discovery.
 - (b) Write short notes on Analog design.

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M. Pharm. (Pharmaceutical Chemistry)

1st Semester Examination
Chemistry of Natural Products

Time : 3 Hours]

[Max. Marks : 75

Note: 1. Attempt all questions

2. Each question carries equal marks.

1. Answer any **FIVE** of the following

[3×5=15]

- (a) Give uses of Folic acid.
- (b) Chemistry of terpenoids
- (c) Uses of estradiol
- (d) Role of Vitamin C
- (e) Discuss antibiotics.
- (f) Discuss Docetaxel uses.
- (g) Importance of Vitamin E.

2. Answer any **FIVE** of the following

[3×5=15]

- (a) Discuss cardiovascular drugs.
- (b) Discuss biotechnology
- (c) Discuss contraceptive agent.
- (d) Discuss sex hormones
- (e) Introduction and chemistry of sterols
- (f) Discuss microlide antibiotics
- (g) Side effects of steriods

3. Answer any TWO of the following [7.5x2=15]

- (a) Recombinant DNA technology
- (b) Discuss Neuromuscular Blocking Drugs with examples.
- (c) Give the Chemistry and Physiological significance of Vitamin A, B1 and B2.

4. Answer any TWO of the following [7.5x2=15]

- (a) Discuss Anticancer drugs with example.
- (b) Discuss contraceptive agents in detail.
- (c) Define and classify Alkaloids in detail.
- (d) Discuss Drugs Affecting the Central Nervous System with example.

5. Answer any ONE of the following [15x1=15]

- (a) Discuss Infrared spectroscopy in detail.
- (b) Discuss gene therapy and drug discovery in detail.

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