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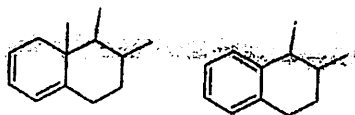
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M. Pharm.**(Pharmaceutics / Pharmacology / Pharmaceutical Chemistry)****1st Semester Examination****Modern Pharmaceutical Analytical Techniques***Time : 3 Hours]**[Max. Marks : 75***Note:** 1. Attempt all questions

2. Each question carries equal marks.

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

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



- What are the Chromatographic parameters?
 - What are the factors affecting column efficiency in Adsorption chromatography?
 - Give the principle of Gel electrophoresis.
- 2. Shorts answer: Attempt any FIVE questions [3×5=15]**
- Discuss the application of Chromatography technique.
 - 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. (Pharmacology)**1st Semester Examination****Advanced pharmacology -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) Write a note on ketamine.
- (b) Define hypertension and give the name of any three antihypertensive drugs.
- (c) Write about orphan drugs.
- (d) Define loading and maintenance dose.
- (e) classify anti-anxiety drugs
- (f) Define pharmacokinetics and pharmacodynamics.
- (g) Discuss in brief about combination of levodopa and carbidopa.

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

- (a) Write a short note on anticoagulant with suitable example.
- (b) Classify local anaesthetic.
- (c) Discuss in brief about myasthenia gravis and their treatment.
- (d) Classify peripherally and centrally acting skeletal muscle relaxant.
- (e) Define drug distribution and enlist the factors affecting drug distribution.

- (f) Write a short note on haematinics and blood maturation factors.
- (g) Give the comparative features of general and local anaesthesia.

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

- (a) Give the diagrammatic representation for synthesis, storage and release of acetylcholine.
- (b) Define sedative and hypnotic and give their classification.
- (c) Define Parkinsonism. Give the classification of anti-parkinsonian drugs.

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

- (a) Classify hypolipidaemics and discuss in brief about HMG-CoA reductase inhibitors.
- (b) Classify antidepressants and give the mechanism of action of imipramine.
- (c) Give the classification of antiepileptic's. Discuss in brief about phenytoin with its mechanism of action and adverse effects.

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

- (a) Write a note on therapeutic classification of anticholinergic drugs and explain the pharmacological action & uses of atropine.
- (b) Define receptors and give their types? Explain in detail about the transducer mechanism involved in G-protein coupled receptors mediated response.

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M. Pharm. (Pharmacology)**1st Semester Examination****Pharmacological and Toxicological Screening Methods - 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) Discuss the applications of transgenic animals.
 - (b) Write the general principal of immunoassay.
 - (c) Define bioassay & explain the principal of bioassay.
 - (d) Write a short note on Good Laboratory Practce (GLP).
 - (e) Write a note on the limitations of animals of animal experimentation.
 - (f) Write a short note on common laboratory animals.
2. Attempt any **FIVE** questions **[3×5=15]**
 - (a) Give a short note on toxicological screening methods of anti-ulcerogenic agents. •
 - (b) Write a note on the screening activity of antidiabetic agents.
 - (c) Write a short note on breeding of laboratory animals.
 - (d) Explain the paw edema assay.
 - (e) Write a short note on the methods of anti-psychotic screening.

(f) Write a short note on antiemetic assay.

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

(a) Explain the preclinical screening of antidepressant activity.

(b) Discuss the antifertility assay in detail.

(c) Explain the preclinical screening method of anti-hypertensive agents.

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

(a) Explain the preclinical screening of anti-epileptic drugs.

(b) Write a note on the hepatoprotective screening methods.

(c) Write a note on preclinical screening of neurodegenerative diseases.

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

(a) Explain the preclinical screening of immunomodulators.

(b) Discuss CPCSEA guidelines to conduct experiments on animals.

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M. Pharm. (Pharmacology)
1st Semester Examination
Cellular and Molecular Pharmacology

Time : 3 Hours]

[Max. Marks : 75

Note: 1. Attempt all the questions as per the instructions.

2. Each question carries equal marks.

1. Attempt any **FIVE** questions

[3×5=15]

- (a) What is gene sequencing?
- (b) What is metabolomics?
- (c) Describe cell cycle.
- (d) What is gene expression?
- (e) Give the applications of siRNA and miRNA.
- (f) What are secondary messengers?

2. Attempt any **FIVE** questions

[3×5=15]

- (a) Define intercellular and intracellular signaling pathway.
- (b) Write down the applications of nutrigenomics.
- (c) Give the basic principle of recombinant DNA technology.
- (d) Write in brief about types of gene therapy.
- (e) Explain cell cycle check points.
- (f) Write in brief about gene mapping.

3. Attempt any TWO questions [7.5x2=15]
- (a) Write down the principle and applications of polymerase chain reaction (PCR).
 - (b) Give the principle and applications of SDS-PAGE.
 - (c) Write in brief about physiological role of Calcium ion.
4. Attempt any TWO questions [7.5x2=15]
- (a) Write a detailed note on physiological role of nitric oxide.
 - (b) Explain in detail about intrinsic and extrinsic pathway of apoptosis.
 - (c) Write a detailed note on JAK-STAT pathway.
5. Attempt any ONE question [15x1=15]
- (a) Explain gene therapy. Give a detailed note on applications of gene therapy.
 - (b) Classify receptors. Write in detail about G-protein coupled receptors.

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