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M.Pharmacy(Pharmacology) (Sem.–2)

ADVANCED PHARMACOLOGY -II

Subject Code: MPL-201T

M.Code: 74943

Date of Examination: 11-05-2026

Time: 3 Hrs. Max. Marks: 75

INSTRUCTIONS TO CANDIDATES:

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. Discuss critically about recent advances in the drug therapy of Alzheimer's disease.
2. Write notes on the following:

   (a) Sulphonyl ureas as anti-diabetic agents.

   (b) Selective Estrogen receptor modulators.
3. (a) Discuss pharmacology of prokinetic agents.

   (b) Write an exhaustive note on proton pump inhibitors.
4. Write notes on the following:

   (a) Anti-metabolites used in cancer chemotherapy.

   (b) Drug therapy of Asthma.
5. (a) Add a note on fluoroquinolones as anti-microbial agents.

   (b) Discuss mechanism of action, adverse effects and therapeutic implications of Amphotericin B.
6. Write notes on the following:

   (a) Reverse transcriptase inhibitors.

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(b) Chronotherapeutics.

(c) Multidrug resistant TB.

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Total No. of Questions: 06

M.Pharmacy (Pharmacology) (Sem.–2)

CLINICAL RESEARCH & PHARMACOVIGILANCE

Subject Code: MPL-204T

M.Code: 74946

Date of Examination: 21-05-2026

Time: 3 Hrs. Max. Marks: 75

INSTRUCTIONS TO CANDIDATES:

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. (a) Describe the composition, role and responsibilities of each member of institutional review board.

   (b) Define and explain informed consent documentation process.

2. (a) Classify various types of observational study designs and describe the salient features, advantages and disadvantages of each type of study design.

   (b) Describe the role of sponsors and contract research organizations (CROs) in accelerating clinical research in India.

3. Briefly describe the following:

   (a) Pharmacovigilance program of India (PvPI)

   (b) WHO international drug monitoring programme

4. Define, classify and describe detection, reporting methods and management of adverse drug reactions.

5. (a) Describe the cost-utility and cost-minimization methods of pharmaco-economic analysis with suitable examples.

   (b) Briefly explain the concept of international classification of diseases.

6. Write a short note on the following:

   (a) Vaccine safety surveillance studies

   (b) Investigator brochure

   (c) Layout of sterile and aseptic area

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M.Pharmacy (Pharmacology) (Sem.–2)

PRINCIPLES OF DRUG DISCOVERY

Subject Code : MPL-203T

M.Code : 74945

Date of Examination : 18-05-2026

Time : 3 Hrs. Max. Marks: 75

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. (a) Why do high-attrition rates in clinical trials significantly impact the initial target validation budget?

(b) Explain the roles of Genomics in identifying a novel therapeutic target.

(c) Evaluate the utility of Protein Microarrays over Nucleic Acid Microarrays in validating a target's functional activity.

2. (a) Explain the logical mechanism by which Antisense Oligonucleotides (ASOs) achieve target knockdown compared to siRNA.

(b) Why is a "knock-out" mouse model considered a gold standard for target validation?

(c) Describe the structural role of Zinc Finger Proteins in gene-specific targeting during the early discovery phase.

3. (a) Distinguish between a "Protein Motif" and a "Domain." How does a domain act as a modular unit in drug-receptor interactions?

(b) Compare "Threading" and "Homology Modeling" for predicting the 3D structure of a protein with low sequence identity.

(c) Discuss how X-ray Crystallography provides higher resolution data for docking compared to NMR spectroscopy.

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4. (a) How does Rational Drug Design minimize the reliance on serendipity?

(b) Explain the "Drug-likeness screening" process. Why are Lipinski's rules applied before performing molecular docking?

(c) Differentiate between "Manual Docking" and "Flexible Docking."

5. (a) Discuss why "Molecular Alignment" is the most critical step in generating a reliable CoMFA contour map.

(b) Describe the mathematical relationship between Hansch Analysis and Free Wilson Analysis. How can they be used complementarily?

(c) Discuss the significance of Partial Least Square (PLS) analysis in 3D-QSAR when dealing with high-dimensional data.

6. (a) Explain the concept of prodrug design and discuss how it can be utilized to improve patient acceptability of a drug. Illustrate your answer with a suitable example.

(b) Discuss the application of prodrug strategies in achieving site-specific drug delivery. Support your answer with one appropriate example.

(c) Discuss the key practical considerations involved in prodrug design. Why is the toxicity of the released moiety a critical factor in the successful development of a prodrug?

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M.Pharmacy (Pharmacology) (Sem.–2)

PHARMACOLOGICAL & TOXICOLOGICAL SCREENING

Subject Code: MPL-202T

M.Code: 74944

Date of Examination: 14-05-2026

Time: 3 Hrs.

Max. Marks: 75

INSTRUCTIONS TO CANDIDATES:

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. Discuss critically about general principles of good laboratory practice. 15

2. (a) What is safety pharmacology? Discuss importance of safety pharmacology in new drug development process. 10

   (b) Add a brief note on schedule-Y guidelines for conducting sub-acute toxicity studies. 5

3. (a) Define and explain the importance of IND. Schematically present the process of IND application to approval. 10

   (b) Write a note on alternative methods of animal toxicity testing. 5

4. (a) Explain fertility and early embryonic development study techniques in rats. 8

   (b) Write briefly on Tier II Safety Pharmacology Studies. 7

5. Write notes on following:

   (a) Inhalational toxicity studies as per OECD guidelines 8

   (b) Acute eye irritation testing. 7

6. (a) Explain toxicokinetic with its importance and applications. 7
   (b) Write notes on Ames test for determination of genotoxicity and MTT assay for determination of cell viability. 8

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