SVKM NMIMS Global University

School of PharmacyTechnology Management

Programme: Master of Pharmacy (Pharmacology)

Year: I/Semester I (Exam Year: 2025-2026)

Subject: Advanced Pharmacology I

Date: 15 Dec 2025 **Time:** 10:00 am - 01:00 pm (03:00 Hrs.)

Max Marks: 75

FINAL EXAMINATION(2025-2026)

Instructions:

1. This question paper contains 2 pages
2. All questions are compulsory.
3. Answer to each new question to be started on a fresh page.
4. Figure in right hand side indicates full marks.
5. Draw the diagrams or flow charts wherever necessary.

1. Answer the following(Attempt Any 5 Questions) **10**

1. What is first-pass metabolism? Name any two route of drug administration bypassing first-pass metabolism. **2**

2. Define drug metabolism and mention the primary organs responsible for this process. **2**

3. State the different cellular targets for the drugs. **2**

4. What is diffusion hypoxia? **2**

5. Name the enzymes involved in Tryptophan conversion to 5-HT and Kynurenine. **2**

6. State the biological significance of angiotensin. **2**

7. Write the distribution of serotonin in the human body. **2**

2. Answer the following(Attempt Any 4 Questions) **20**

1. Explain the GPCR in detail **5**

2. Write a note on Huntington’s disease with therapeutic targets. **5**

3. Explain the pathophysiology of Alzheimer's disease mentioning the drug targets. **5**

4. Explain the main uses and side effects of beta-blockers. **5**

5. Explain the actions and clinical uses of any one sympathomimetic drug. **5**

6. Explain the mechanism of action and side effects of second generation antipsychotic drugs **5**

3. Answer the following(Attempt Any 3 Questions) **45**

1. Explain protein binding of the drug and its influence on drug kinetics in linear and non-linear compartment models. **15**

2. Classify general anesthetics? Explain preanesthetic medication and the stages of inhalational anesthesia. **15**

3. Explain antipsychotic drugs in detail. **15**

4. Describe the pharmacological actions of adrenaline. Explain the therapeutic uses and adverse effects of sympathomimetic agents. **15**

5. Describe the biosynthesis of dopamine. Classify antiparkinsonian drugs. Explain the pharmacology of levodopa. **15**

SVKM NMIMS Global University

School of PharmacyTechnology Management

Programme: Master of Pharmacy (Pharmacology)

Year: I/Semester I (Exam Year: 2025-2026)

Subject: Cellular and Molecular Pharmacology

Date: 19 Dec 2025 **Time:** 10:00 am - 01:00 pm (03:00 Hrs.)

Max Marks: 75

FINAL EXAMINATION(2025-2026)

Instructions:

1. This question paper contains 2 pages
2. All questions are compulsory
3. Answer to each new question to be started on a fresh page.
4. Figure in right hand side indicates full marks.
5. Draw the diagrams or flow charts wherever necessary.

1. Answer the following(Attempt Any 5 Questions) **10**

1. What is the role of the ribosome? **2**

2. What type of electrostatic charge is carried by DNA, and why? **2**

3. Why do RNAs not contain thymine? **2**

4. What are meiosis and mitosis? **2**

5. What is the full form of SDA-PAGE and ELISA? **2**

6. Define proteomics and explain with an example. **2**

7. What is the principle of the Trypan blue cell viability assay? **2**

2. Answer the following(Attempt Any 4 Questions) **20**

1. Illustrate the term gene mapping. Explain the different types of it. **5**

2. Explain in detail various phases of cell cycle. **5**

3. Explain intercellular and intracellular signalling pathways. **5**

4. Explain any two types of ELISA. **5**

5. Explain the principle and applications of the Polymerase chain reaction. **5**

6. Explain types of immunotherapeutics. **5**

3. Answer the following(Attempt Any 3 Questions) **45**

1. Explain miroRNA, t-RNA and mRNA with their significance. **15**

2. Explain the ligand-gated ion channels and enzyme linked receptors. **15**

3. Explain about $Ca2^{+}$, cAMP, DAG, AC, and IP3 signalling pathways. **15**

4. Explain in detail the Direct, competitive and sandwich ELISA. **15**

5. Explain the principle, applications and uses of immunotherapeutic agents. **15**

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School of PharmacyTechnology Management

Programme: Master of Pharmacy (Pharmaceutical Chemistry)/Master of Pharmacy (Pharmaceutical Quality Assurance)/Master of Pharmacy (Pharmaceutics)/Master of Pharmacy (Pharmacology)

Year: I/Semester I (Exam Year: 2025-2026)

Subject: Modern Pharmaceutical Analytical Techniques

Date: 13 Dec 2025 **Time:** 10:00 am - 01:00 pm (03:00 Hrs.)

Max Marks: 75

FINAL EXAMINATION(2025-2026)

Instructions:

1. This question paper contains 2 pages
2. All questions are compulsory
3. Figures to the right indicate full marks
4. Draw the diagrams or flow charts wherever necessary

1.	This is a sample question group (Attempt Any 5 Questions)	**10**
	1. Define fluorescence and phosphorescence	**2**
	2. Write applications of UV Visible Spectrocopy	**2**
	3. Predict the peaks obtained for isopropyl alcohol	**2**
	4. Enlist the types of ion source in MS	**2**
	5. Enlist any four types of components that can separated by Ion exchange chromatography.	**2**
	6. Enlist types of electrophoresis	**2**
	7. Explain Bioluminiscence assay.	**2**
2.	Attempt any FOUR questions of the following(Attempt Any 4 Questions)	**20**
	1. Write a note on Thermal detectors used in IR spectroscopy. Explain construction and working of any one thermal dectector	**5**
	2. Elaborate on principle and application of ^{13}CNMR	**5**

3.	Explain the nitrogen rule in mass spectrometry and its application in determining the molecular formula of organic compounds.	**5**
4.	Write a note on Gel Chromatography	**5**
5.	Write a note on types X-ray diffraction techniques	**5**
6.	Explain the principle and applications of DTA.	**5**
3.	Attempt any THREE questions of the following(Attempt Any 3 Questions)	**45**
1.	Explain in detail about principle, instrumentation, and application Spectroflurimentry. Add a note on quenching of fluorescence	**15**
2.	Discuss in details about Principle, Instrumentation and application of 1H NMR. Add a note on Spin Spin coupling and decoupling of proton	**15**
3.	Discuss in details about principle, instrumentation and application of mass spectrometry. Add a note on types of ionisation process	**15**
4.	Discuss in details about the principle, instrumentation and Application of GC. Comment on the column efficiency of GC	**15**
5.	Explain in detail about principle, instrumentation and application of UPLC. Add a note on HETP.	**15**

SVKM NMIMS Global University

School of PharmacyTechnology Management

Programme: Master of Pharmacy (Pharmacology)

Year: I/Semester I (Exam Year: 2025-2026)

Subject: Pharmacological and Toxicological Methods I

Date: 17 Dec 2025 **Time:** 10:00 am - 01:00 pm (03:00 Hrs.)

Max Marks: 75

FINAL EXAMINATION(2025-2026)

Instructions:

1. This question paper contains 2 pages
2. All questions are compulsory
3. Answer to each new question to be started on a fresh page.
4. Figure in right hand side indicates full marks
5. Draw diagrams or flow charts wherever necessary

1.	Answer the following(Attempt Any 5 Questions)	**10**
	1. Write the applications of transgenic animals in preclinical research.	**2**
	2. What is the purpose of Form A by CCSEA?	**2**
	3. What is the purpose of Form B by CCSEA?	**2**
	4. What is the difference between a negative control and a positive control?	**2**
	5. Which methods are commonly used to induce liver injury for the screening of hepatoprotectives?	**2**
	6. What is a homogeneous immunoassay? Give one example.	**2**
	7. List the methods used for the screening of antiallergic agents	**2**
2.	Answer the following(Attempt Any 4 Questions)	**20**
	1. Explain the environmental conditions in the animal house facility.	**5**
	2. Explain the alternative methods to animal experimentation.	**5**

3. Explain the limitations of animal experimentation. **5**

4. Explain any one method in detail used for the screening of antiarrhythmic drugs. **5**

5. Explain any one method in detail used for the screening of antipyretics. **5**

6. Explain any one method in detail used for the screening of antidiarrheals. **5**

3. Answer the following(Attempt Any 3 Questions) **45**

1. Explain the applications of any five laboratory animals in preclinical research. **15**

2. Define bioassay. Explain the principle, application, limitations, and methods of bioassay. **15**

3. Explain the methods used for the screening of antianxiety drugs. **15**

4. Explain the methods used for the screening of antianginal drugs. **15**

5. Explain the methods used for the screening of aphrodisiacs and anti-fertility agents. **15**