



Pharmacology ①

Code No: H-8069/PCI

FACULTY OF PHARMACY
M. Pharmacy (Pharmacology) I-Semester (PCI) (Backlog)
Examination, December 2025

Subject: Cellular and Molecular Pharmacology

Time: 3 Hours

Max Marks: 75

Note: Answer any Five questions

(5 x 15 = 75 Marks)

1. (a) Define Cell biology. Write a note on structure and function of cell and its organelles. [9M]
(b) Explain how cell cycle will be regulated. [6M]
2. (a) Define cell signalling. Write a note on G-protein coupled receptors. [10M]
(b) Write briefly about cyclic AMP signalling pathway. [5M]
3. (a) Explain in detail Cyclic- AMP, Cyclic-GMP, IP3 and NO. [10M]
(b) Explain in detail JAK and STAT signalling pathways. [5M]
4. (a) Write a note on principle and applications of genomic tools. [7M]
(b) Explain principle and application of DNA electrophoresis. [8M]
5. (a) Explain recombinant DNA technology. [8M]
(b) Define pharmacogenomics. Add a note on application of genomics & nutrigenomics. [7M]
6. What are the various types of immunotherapeutic? Discuss its uses in clinical practices. [15M]
7. (a) Define cell culture media. Add a note on various types of cell culture. [8M]
(b) What are the basic equipment used in cell culture lab. [7M]
8. (a) Explain the principle and applications of flow cytometry. [10M]
(b) Write the significance of biosimilars. [5M]



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FACULTY OF PHARMACY

**M. Pharmacy (Pharmacology) I - Semester (PCI) (Backlog)
Examination, December 2025**

Subject: Pharmacological and Toxicological Screening Methods - I

Time: 3 hours

Max. Marks: 75

Note: Answer any Five questions

(5 x 15 = 75 Marks)

1. a) Write a note on production and maintenance transgenic animals. (7 Marks)
b) Describe about the good laboratory practice (8 Marks)
2. a) Write any two screening methods for CNS depressants. (8 Marks)
b) Write a note on writhing test. (7 Marks)
3. a) Write any four screening methods for antifertility agents. (12 Marks)
b) Write a note on pylorus ligation method. (03 Marks)
4. a) Explain any four screening methods for hepatoprotective agents. (12 Marks)
b) Write a note on MTT assay. (03 Marks)
5. a) Write any two screening methods for anti-arrhythmic agents. (8 Marks)
b) Write a note on Immunoassay. (7 Marks)
6. a) Explain in brief about Rota rod test and acto-photometer test. (8 Marks)
b) Write a note on MES induced epilepsy. (7 Marks)
7. a) Explain any two screening methods for anti-Psychotics. (8 Marks)
b) Explain the limitations of animal experimentations. (7 Marks)
8. a) Explain about the CPCSEA guideline for to conduct experiments on animals. (10 Marks)
b) Write a note on receptor screen. (5 Marks)



Code No: H-8067/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I - Semester (PCI) (Backlog) Examination, Dec. 2025

Subject: Advanced Pharmacology - I

Time: 3 hours

Max. Marks: 75

Note: Answer any Five Questions

(5x15=75)

1. a) Discuss the physiological role of dopamine transmission in CNS.
b) Explain in brief about morphine. (8+7 Marks)
2. a) Discuss the pharmacology of acetyl choline.
b) Write the physiological role of G-protein coupled receptors (7+8 Marks)
3. a) Classify anti-adrenergic drugs. Write the pharmacology of propranolol.
b) Write the physiological role of nuclear receptors. (8+7 Marks)
4. a) Explain in brief about linear and nonlinear pharmacokinetic.
b) Write a note on d-Tubocurarine. (8+7 Marks)
5. a) Explain the pharmacology of heparin.
b) Write a note on HMG-COA reductase inhibitors. (8+7 Marks)
6. a) Write about the pathophysiology of hyperlipidaemia and drugs used in this condition.
b) Write a note on digoxin. (8+7 Marks)
7. a) Classify antipsychotics. Write the pharmacology of haloperidol. (8+7 Marks)
b) Explain the MOA, therapeutic uses and adverse effects of ondansetron.
8. a) Classify antiepileptic agents. Write the pharmacology of phenytoin.
b) Write a note on 5-HT antagonists. (10+5 Marks)



Code No. G-13138/PCI

FACULTY OF PHARMACY

**M. Pharmacy (PCI) I - Semester (Pharmacology) (Main & Backlog) Examination,
June 2025**

Subject: Pharmacological and Toxicological Screening Methods – I

Time: 3 Hours

Max.Marks:75

Note: Answer any five questions. All questions carry equal marks.

- 1) a) Describe the production and applications of transgenic animals. (8 Marks)
b) Discuss briefly about the physical euthanasia techniques of experimental animals.(7 Marks)
- 2) Define Parkinsonism. Enlist the models available to screen drugs used for the treatment of Parkinsonism and explain any two methods. (15 Marks)
- 3) Describe the screening methods to evaluate a compound for (8 Marks)
a) Antiulcer activity (7 Marks)
b) Anti-inflammatory activity
- 4) Discuss the *in vitro* and *in vivo* techniques for screening of anticancer agents. (15 Marks)
- 5) Enlist the various screening models of immunomodulators. Explain any two methods in detail. (15 Marks)
- 6) Write short notes on:
a) Immunoassay of insulin (7 Marks)
b) Alternate animal experiments (8 Marks)
- 7) What is Diabetes? List out the methods available for induction of diabetes experimentally. Discuss streptozotocin induced method for the screening of antidiabetic agents. (15 Marks)
- 8) Describe the preclinical screening procedures for the following:
a) Antiasthmatic agents (8 Marks)
b) Anxiolytics (7 Marks)



Code No: G-13137/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I - Semester (PCI) (Main & Backlog) Examination, June 2025
Subject: Advanced Pharmacology-I

Time: 3 Hours

Max. Marks:75

Note: Answer Any Five Questions. All Questions Carry Equal Marks

1. a) Write a note on drug excretion process. (8 Marks)
b) Describe in detail about enzyme linked receptors. (7 Marks)
2. a) Write a note on passive and active transport of drug absorption. (8 Marks)
b) Write a note on linear pharmacokinetics. (7 Marks)
3. a) Discuss the steps involved in neurotransmission. (8 Marks)
b) Explain in brief about role of histamine transmission in CNS. (7 Marks)
4. a) Discuss the pharmacology of adrenaline. (8 Marks)
b) Write a note on cholinesterase inhibitors. (7 Marks)
5. a) Describe the pharmacology of morphine. (8 Marks)
b) Describe the pharmacology of chlorpromazine. (7 Marks)
6. a) Describe the pharmacology of benzodiazepines. (8 Marks)
b) Classify antihypertensive agents. Write the pharmacology of ACE inhibitors. (7 Marks)
7. a) Describe the pharmacology of digoxin. (8 Marks)
b) classify anti-hyperlipidemics. Write a note on HMG- COA reductase inhibitors. (7 Marks)
8. a) Explain the pharmacology of anti-histamines. (8 Marks)
b) Write a note on 5-HT antagonists. (7 Marks)



Code No: G-13139/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I - Semester (PCI) (Main & Backlog) Examination, June 2025

Subject: Cellular and Molecular Pharmacology

Time: 3 Hours

Max Marks: 75

Note: Answer any five Questions. All Questions carry equal marks.

1. (a) Write a note on gene mapping. [8 Marks]
(b) Describe about cell structure and their functions. [7 Marks]
2. (a) Write the physiological role of enzyme linked receptors. [8 Marks]
(b) Write a note on cAMP and NO. [7 Marks]
3. (a) Write the structure and functions of nuclear receptors. [8 Marks]
(b) Write a note on AMP signaling pathway. [7 Marks]
4. (a) Explain about the SDS page and ELISA. [8 Marks]
(b) Write a note on micro array technique. [7 Marks]
5. (a) Write the clinical uses of immunotherapeutics. [8 Marks]
(b) Write a note on genetic variations in drug metabolism. [7 Marks]
6. (a) Explain in brief about metabolomics and nutrigenomics. [8 Marks]
(b) Write a note on cell viability assays. [7 Marks]
7. (a) Explain about principle and applications RT-PCR. [8 Marks]
(b) Write a note on siRNA and microRNA. [7 Marks]
8. (a) Explain about the glucose uptake assay and calcium influx assay. [8 Marks]
(b) Write a note on genetic variations in G-protein coupled receptors. [7 Marks]



Code No. G-13122/PCI

FACULTY OF PHARMACY

M. Pharmacy (PCI) I – Semester (Main & Backlog) Examination, June 2025
Subject: Modern Pharmaceutical Analytical Techniques
(Common to All)

Time: 3 Hours

Max. Marks: 75

Note: Answer any five questions. All questions carry equal marks.

1. (a) Write Beer –Lambert's law and explain the deviations to it. (7 Marks)
(b) Explain the instrumentation of FTIR. (8 Marks)
2. (a) Write principle involved in proton NMR spectroscopy. Discuss on chemical shift (7 Marks)
(b) Explain the instrumentation of NMR with labelled schematic diagram. (8 Marks)
3. (a) Discuss about different ionization techniques of mass spectroscopy. (7 Marks)
(b) Brief out the fragmentation patterns and rules of different organic compounds. (8 Marks)
4. (a) Write instrumentation details of HPLC with labelled schematic diagram. (10 Marks)
(b) Differentiate between HPTLC and HPLC. (5 Marks)
5. (a) Explain about gel electrophoresis. (8 Marks)
(b) What is X-ray crystallography? Write Brag's law. (7 Marks)
6. Write notes on
(a) Sampling in IR spectroscopy
(b) FT-NMR. (2 x 7.5 = 15 Marks)
7. Give informative note on
(a) Flame emission spectroscopy
(b) Gas chromatography (2 x 7.5 = 15 Marks)
8. (a) Explain the instrumentation of UV-Visible spectrophotometer. (10 Marks)
(b) Write about any one X-ray crystallographic method. (5 Marks)
