

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, Feb/March 2026

Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer All the Questions.

(10 x 2 = 20 Marks)

1. Define Biosensor and Immobilization.
2. Write the role of DNA ligase and polymerase in DNA replication.
3. List the Linkers used in gene manipulation.
4. What are the ideal properties of Vector?
5. Write the mechanism of conversion of toxin to toxoids.
6. Write the uses of human fibrinogen.
7. Define Mutation. Explain about point mutations.
8. Write about spargers used in a fermentor.
9. What are restriction endonucleases.
10. What are plasmids? Explain how plasmids offer extra characters to the host.

PART – B

Note: Answer any Two Questions.

(2 x 10 = 20 Marks)

11. Explain the methods of horizontal gene transfer from one bacterium to another bacterium.
12. Explain the general methods of vaccine preparation.
13. What are plasma substitutes and ideal properties of plasma substitutes? Explain the production of plasma substitutes.

PART – C

Note: Answer any Seven questions

(7 X 5 = 35 Marks)

14. Give an account of collection, processing & storage of whole human blood.
15. Write about Structure and function of MHC class I and II.
16. Explain the genetic organization of Eukaryotes.
17. Explain about western blotting technique.
18. Explain the production of Insulin by fermentation technology.
19. Write about polymerase chain reaction and its applications.
20. Write about the production enzyme catalase.
21. Explain type I and type II hypersensitivity reactions.
22. What are Immunoglobulins? Name the Immunoglobulin that can cross the placental barrier. Write about IgG and IgE antibodies.

*******End*******

Code No: H-8155/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, Feb/March 2026

Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer All the Questions.

(10 x 2 = 20 Marks)

1. Define the terms QA & GMP
2. Mention different ICH guidelines.
3. Why hygiene maintenance is needed in Pharma Industry?
4. Name different personnel records in a pharmaceutical industry.
5. Name few equipment used in pharmaceutical industry.
6. What are the reports issued by QC department?
7. What are to be mentioned in a complaint to a pharma industry?
8. What is waste disposal?
9. Write the significance of validation.
10. Mention different distribution records.

PART – B

Note: Answer any Two Questions.

(2 x 10 = 20 Marks)

11. Discuss about different elements of TQM.
12. Explain about the premises of a Pharmaceutical Industry.
13. What is Calibration? Write its significance and explain calibration of pH meter.

PART – C

Note: Answer any Seven questions

(7 X 5 = 35 Marks)

14. Write informative notes on QbD.
15. Give the procedure for NABL accreditation.
16. Write notes on maintenance of stores for raw materials.
17. Write quality control tests for rubber closures.
18. Explain the contents of a SOP.
19. Discuss on recalling of products.
20. What is validation. Write about types of validation.
21. Discuss on qualification of UV-Visible spectrophotometer.
22. Give informative notes on good warehousing practices.

*******End*******

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI-Semester (Backlog) Examination, February/March 2026

Subject: Pharmacology-III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. What are nasal decongestants? Give examples.
2. Classify antiemetics with examples.
3. What are superinfections and give any two examples?
4. What are the therapeutic uses of sulfonamides?
5. Write the MOA and therapeutic uses of metronidazole.
6. Write the MOA and therapeutic uses of dapsone.
7. Classify immunosuppressants.
8. Mention any two organisms causing UTIs and STDs.
9. Define circadian rhythm and write any two applications of chronotherapy.
10. What are the clinical features of organophosphate poisoning.

PART B

Note: Answer any two questions.

(2 x 10= 20 Marks)

11. Classify anti-asthmatic drugs. Discuss about bronchodilators.
12. Classify anticancer drugs and describe the general toxicity of cytotoxic drugs.
13. Discuss about general principles of management of poisoning.

PART C

Note: Answer any seven questions.

(7 x 5= 35 Marks)

14. Write notes on treatment of constipation.
15. Write the MOA, adverse drug reactions and therapeutic uses of aminoglycosides.
16. Discuss the pharmacology of cotrimoxazole.
17. Discuss about antimicrobial resistance.
18. Classify antifungal drugs. Write the pharmacology of ketoconazole.
19. Classify anti-tubercular drugs. Write the pharmacology of isoniazid.
20. Classify anti-retroviral drugs. Discuss about protease inhibitors.
21. Write notes on protein drugs.
22. Write notes on acute and chronic toxicity studies.

FACULTY OF PHARMACY**B. Pharmacy (PCI) VI-Semester (Backlog) Examination, February / March 2026****Subject: Medicinal Chemistry - III****Time: 3 Hours****Max. Marks: 75****PART – A****Note: Answer all the questions.****(10 x 2 = 20 Marks)**

1. Write the structure and uses of Amoxycillin
2. Write the structure and uses of Chloramphenicol.
3. Differentiate Penam & Cephem with structures.
4. Write the mechanism of action of Macrolide antibiotics.
5. Write the structure of Chloroquine & Ethambutol?
6. Define and classify Prodrugs and give two examples.
7. Write the mechanism of action of folate reductase inhibitors.
8. Define and Write the applications of Combinatorial chemistry
9. Write the mechanism of action of Aminoglycosides?
10. Give the synthesis and uses of Dapsone.

PART B**Note: Answer any two questions.****(2 x 10 = 20 Marks)**

11. a) Write the structures and uses of three drugs each from Cephalosporins and Pencillins
b) Discuss in detail about SAR, Mechanism of action and side effects of Tetracyclins
12. What are antifungal agents, give the classification and Discuss in detail about synthetic anti fungal agents.
13. a) Classify Sulphonamides with structural examples and write the SAR
b) Write the synthesis and mechanism of action of Sulfacetamide and Sulfamethoxazole

PART C**Note: Answer any seven questions.****(7 x 5 = 35 Marks)**

14. Write in detail about beta lactamase inhibitors.
15. Write in detail about quinolones.
16. What is docking and write in detail about various docking techniques.
17. Give the structure Mechanism of Action and uses of a) Itraconazole b) Praziquantal
18. Write the synthesis and uses of Nitrofurantoin and Ciprofloxacin.
19. Explain various physicochemical parameters used in QSAR studies.
20. Define combinatorial chemistry and write in detail about solid phase and solution phase synthesis.
21. Write the structures of any five synthetic anti tubercular agents and write their mechanism of action.
22. What are anthelmintics? Write the synthesis, Mechanism of action and uses of Mebendazole.

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, February/March 2026

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer All the Questions.

(10 x 2 = 20 Marks)

1. Define "Herbal medicine" and "herbal drug preparation" as per WHO.
2. Explain Bio-prospecting emphasizing on its merits and demerits.
3. Fenugreek is a health food. Justify.
4. What are the principles of Homeopathic system of medicine.
5. Write about any two natural sweeteners.
6. Write applications of *Bacillus thuringensis* (Bt).
7. What are the objectives of schedule Z.
8. What are the different types of pheromones.
9. Write about guar gum and saffron.
10. Write about CIMAP and CSIR.

PART – B

Note: Answer any Two Questions.

(2 x 10 = 20 Marks)

11. Explain ICH guidelines for quality assessment of herbal drugs.
12. What is TKDL. Explain its role in prevention of wrongful patenting of natural products.
13. Discuss about processing techniques of herbal raw materials.

PART – C

Note: Answer any Seven questions

(7 X 5 = 35 Marks)

14. Write a note on organic farming.
15. Write a note on nutraceuticals in prevention and management CVS disorders.
16. Explain herb-drug interactions of Hypericum and Garlic.
17. Elaborate on the patenting aspects of curcuma.
18. Write a note on antioxidants in herbal cosmetics.
19. Explain the methods of preparation and standardization of Bhasmas.
20. Give the composition and functions of ASU DTAB.
21. Write about 'Farmers right' and Breeders' right.
22. Write a note on regulations of manufacture of ASU drugs in India.

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, Feb/March 2026
Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions. (10 x 2 = 20 Marks)

1. Define Noyes and Whitney equation and its application.
2. Define ADME.
3. Differentiate Phase I and Phase II metabolic pathways.
4. Define Absolute bioavailability and Relative bioavailability
5. Explain Apparent volume of distribution.
6. What is Flip-Flop phenomenon and how it is useful in method of residual.
7. What is protein binding. How it effects kinetics.
8. Write a note on excretion of drugs through skin.
9. Write a note on enterohepatic circulation.
10. Define Bioequivalence.

PART – B

Note: Answer any two questions. (2 x 10 = 20 Marks)

11. Discuss about factors influencing drug absorption through GIT.
12. Derive mathematical equations to calculate pharmacokinetic parameters for a drug administered by IV infusion, given blood data, assuming drug follows one compartment open model.
13. Derive Michaelis-Menten equation and how do you estimate K_m and V_{max} .

PART – C

Note: Answer any seven questions. (7 x 5 = 35 Marks)

14. Discuss about in-vitro-in-vivo (IVIVC) correlations.
15. Write a note on Carrier mediated transport.
16. Explain factors affecting renal excretion of drugs.
17. Explain methods of adjustment of dose and dosage regimen in patients with renal and hepatic failure systems.
18. Write in detail about pH partition hypothesis and its limitation.
19. Describe about physiological barriers to the distribution of drugs.
20. Write methods to enhance the bioavailability of poorly soluble drugs?
21. Describe factors causing non-linearity.
22. Explain the various methods for assessment of bioavailability.

*******End*******

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Main & Backlog) Examination, September 2025

Subject: Medical Chemistry - III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define and classify β -Lactam antibiotics?
2. Write the mechanism of action of Aminoglycosides?
3. What are β -Lactamase inhibitors, give examples?
4. Define Prodrugs?
5. Write the structure and uses of Chloroquine?
6. Write the mechanism of action of monobactams?
7. What are folate reductase inhibitors, give few examples?
8. Give the structure and uses of Para amino salicylic acid?
9. Write the applications of combinatorial chemistry?
10. Define QSAR?

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. (a) Define antibiotics? Write the classification and SAR of Pencillins?
(b) Write the synthesis and uses of Chloramphenicol?
12. (a) Give the classification of anti-tubercular agents with examples?
(b) Write the SAR of quinolones?
13. (a) Write the classification of Anti-fungal agents?
(b) Give the synthesis and mode of action of Sulfacetamide?

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Give a note on epimerization of Tetracyclines?
15. Write a note on chemical degradation of cephalosporins?
16. Write the synthesis, mode of action and uses of Metronidazole?
17. Give the classification of Antimalarial agents with examples (write any one structure for each class)?
18. Write the synthesis MOA and uses of Isoniazid?
19. What are anthelmintics? Write the synthesis of Mebendazole?
20. Give a note on combinatorial chemistry?
21. Write the SAR and general synthesis of Sulphonamides?
22. Write the structure, synthesis and uses of Dapsone?

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FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025

Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. What is the objective of NABL accreditation?
2. What is the purpose of ICH guidelines?
3. Differentiate between primary and secondary packaging materials giving suitable examples.
4. How will you calibrate a pH meter?
5. Explain the concept of QSEM.
6. What are the objectives of sanitation in a drug manufacturing area?
7. Define analytical method validation and list the parameters.
8. Explain the elements of QBD.
9. What are the advantages GMP?
10. What is Quality audit. Write different types of audits.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Describe the concept of TQM?
12. Define validation and explain the importance of validation.
What are the different types of validation? Write a note on validation master plan.
13. Explain good warehousing practices (GWP).

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Classify the Complaints and write about the evaluation of complaints.
15. Explain the maintenance of sterile areas in pharma industry.
16. Explain the GLP protocol for the conduct of a nonclinical laboratory study.
17. Define and explain the contents of batch formula record.
18. Write about the personnel responsibilities in QA department.
19. Explain the QC tests for glass as a packaging material.
20. What are the benefits of ISO 9000? Add a note on ISO 14000.
21. What are the sources of contamination and mix up in pharmaceutical manufacturing?
How one can control this type of problems?
22. Explain the location, construction and sanitation of plant.

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FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025

Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define Immobilization. What are the types of immobilization?
2. What is protein engineering?
3. Write a note on DNA ligases.
4. What are nucleases? Explain the types nucleases.
5. What are vaccines? Enlist types of vaccines.
6. Write the preparation and uses of human Thrombin.
7. What are mutants? Types of mutants.
8. Write about foam control equipment.
9. Write a note on transposons.
10. Write the organisms responsible for the production of Amylases and Lipases.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain the production of insulin by rDNA technology.
12. Explain the production of penicillin by fermentation technology.
13. What is hybridoma technology? Explain the production of monoclonal antibodies.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain pBR322 and pUC vectors.
15. Write the applications of genetic Engineering in medicine.
16. Explain the stability of official vaccines.
17. Explain Enzyme linked immunosorbent Assay.
18. What is recombination? Explain general mechanism of recombination.
19. Explain the collection, processing and storage of whole human blood.
20. Explain the preparation of dried human plasma.
21. Explain type II and type III hypersensitivity reactions.
22. Explain the manufacture of dextran. Add a note on methods of size reduction of dextran.

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FACULTY OF PHARMACY**B. Pharmacy (PCI) VI - Semester (Main & Backlog) Examination, September 2025****Subject: Biopharmaceutics and Pharmacokinetics****Time: 3 Hours****Max. Marks: 75****PART – A****Note: Answer all the questions.****(10 x 2 = 20 Marks)**

1. Write Henderson Hasselbach equation and explain the terms.
2. Differentiate tissue binding and protein binding of drugs.
3. List markers used in renal clearance.
4. List the official dissolution apparatus according to USP.
5. Explain Apparent volume of distribution.
6. If equation of the curve is $C=10.e^{-0.69t}$ for a drug administered by IV route and following one compartment open model, then calculate its biological half-life.
7. What is Flip-Flop phenomenon and how it is useful in method of residual.
8. Write formulas for calculating loading dose and maintenance dose.
9. Define non-linear pharmacokinetics.
10. How do you calculate Creatinine Clearance.

PART – B**Note: Answer any two questions.****(2 x 10 = 20 Marks)**

11. Derive mathematical equations to calculate pharmacokinetic parameters for a drug administered by IV infusion, given blood data, assuming drug follows one compartment open model.
12. Discuss about factors affecting protein-drug binding and clinical significance of protein binding of drugs.
13. Derive Michaelis-Menten equation and how do you estimate K_m and V_{max} .

PART – C**Note: Answer any seven questions.****(7 x 5 = 35 Marks)**

14. Discuss about Passive absorption and Active absorption of drugs.
15. Describe tissue permeability of drugs.
16. Write a note on kinetics of protein-drug binding.
17. Describe non-renal excretion of drugs.
18. Discuss about *in-vitro-in-vivo* (IVIVC) correlations.
19. Explain methods of adjustment of dose and dosage regimen in patients with hepatic failure.
20. A 650mg I.V. dose of a drug is administered to a 65kg subject, the plasma drug concentration was found to decline biexponentially. The equation that best describes the drug kinetics $C=67.e^{-14t}+ 33.e^{-3t}$; C is in mg/l. Calculate the different volumes of distribution $V_c, V_p, V_{d\beta}, V_{d_{area}}, V_{d_{ss}}$.
21. How do you calculate absorption rate constant, K_a by using Wagner Nelson method.
22. Describe factors causing non-linearity.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define Herbal medicinal products.
2. What are bhasma and lehya?
3. Write the side effects and interaction of pepper as health food.
4. Define breeder's right.
5. Name any two natural sweeteners with biological source.
6. Mention the evaluation of herbal syrups.
7. What are the source, active constituents and uses of alfalfa?
8. What are ideal requirements of bhasma?
9. Significance of preparation of herbarium.
10. Mention health benefits of spirulina.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain the good agriculture practices in the cultivation of medicinal plants.
12. Explain in detail about the scope and types of Nutraceutical products available in the market.
13. Explain in detail the concept of Ayurvedic system of medicine.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. What are Nutraceuticals? Discuss on the present market scenario and scope of Nutraceuticals.
15. Explain the method of preparation of Aristas.
16. Discuss the objective and components of GMP.
17. Describe the role of honey as health food.
18. Give the side effects and interactions of Ginkgo Biloba.
19. Define herb. Explain the method of processing of Herbal raw materials.
20. Write a short note on binders and diluents used as herbal excipients.
21. Describe the role of herbs in dental care.
22. Discuss in brief on "Sodhana" process.

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FACULTY OF PHARMACY

B. Pharm (PCI) VI - Semester (Main & Backlog) Examination, September 2025

Subject: Pharmacology-III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define Asthma and COPD.
2. What are Biosimilars? Give examples.
3. Write the mechanism of action of Co-trimoxazole.
4. Write a note on lead poisoning.
5. What are common adverse drug effects of chemotherapeutic agents?
6. Differentiate between tolerance and Resistance.
7. Write the mechanism of action of Chloramphenicol.
8. Classify antidiarrhoeals with examples.
9. What is MRSA?
10. What is circadian rhythm? Mention its importance in pharmacotherapy.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Classify Cephalosporins with examples. Write the mechanism of action, pharmacokinetics, adverse effects and uses of cephalosporins.
12. Write in detail about the pharmacological therapy of COPD.
13. Classify broad spectrum antibiotics with examples. Write in detail about mechanism, adverse drug reactions and uses of penicillins.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Classify anti-ulcer drugs. Write a note on proton pump inhibitors.
15. Write the mechanism of action and uses of sulphonamides.
16. Write the prophylaxis of malaria.
17. Classify anti-tubercular drugs with examples and explain the pharmacology of the drugs.
18. Brief up the mechanisms of antifungal drugs.
19. Write the toxicity of quinolones.
20. What are immunostimulants? Write a note on immunoglobulins and their uses.
21. What are cell cycle inhibitors? Explain with examples.
22. Write the mechanism of action and uses of digestants and carminatives.

FACULTY OF PHARMACY
B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025
Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. What is TQM?
2. Mention elements of QbD.
3. List out the benefits of ISO accreditation.
4. Name different personnel records in a pharmaceutical industry.
5. Name few equipment used in pharmaceutical industry.
6. Why GLP is necessary?
7. What are to be mentioned in a complaint to a pharma industry?
8. What is quality audit? Write different types of audits?
9. Write the significance of validation.
10. Mention different distribution records?

PART - B

Note: Answer any two questions

(2 x 10 = 20 Marks)

11. Discuss about ICH guidelines.
12. Discuss about different components of master formula.
13. What is Calibration? Write its significance and explain calibration of pH meter.

PART - C

Note: Answer any seven questions

(7 x 5 = 35 Marks)

14. Write the procedure for NABL accreditation.
15. Explain the location, construction and sanitation of plant.
16. Write notes on maintenance of stores for raw materials.
17. Write quality control tests for glass containers.
18. Write notes on general provisions required to maintain GLP.
19. Discuss on recalling and waste disposal in pharma industry.
20. Explain about validation master plan.
21. Discuss on qualification of UV-Visible spectrophotometer.
22. Give informative notes on good warehousing practices.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Backlog) Examination, March 2025

Subject: Medicinal Chemistry - III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Write the mechanism of action of Pencillins?
2. Write the structure and uses of Chlortetracycline?
3. What are Macrolides, give few examples?
4. Give the applications of Prodrugs?
5. Write the structure and uses of Ciprofloxacin?
6. Write the mechanism of action of Acyclovir?
7. What are folate reductase inhibitors, give few examples?
8. Give the structure and uses of metronidazole?
9. Write the applications of combinatorial chemistry?
10. Define Partition coefficient, Hansch analysis?

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. (a) Define antibiotics? Write the classification and SAR of Cephalosporins?
(b) Write the synthesis and uses of Chloramphenicol?
12. (a) Give the classification of antiviral agents with examples?
(b) Write the synthesis and uses of Nitrofurantion?
13. (a) Write the classification and SAR of Sulphonamides?
(b) Give the synthesis and mode of action of Diethylcarbamazine citrate?

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Give a note on epimerization of Tetracyclines?
15. Write a note on β -Lactamase inhibitors?
16. Write the synthesis, mode of action and uses of Chloramphenicol?
17. Give the classification of Antimalarial agents with examples (write any one structure for each class)?
18. Write the synthesis, MOA and uses of Isoniazid?
19. What are antifungal agents? Write the synthesis of Miconazole?
20. Give a note on combinatorial chemistry?
21. Write the classification of Anti-protozoal agents? Write the structure and uses of Tinidazole and Ornidazole?
22. Write the structure, synthesis and uses of Dapsone?

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FACULTY OF PHARMACY
B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025
Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define biosensors. Write the main components of biosensors.
2. Write a brief note on penicillinase.
3. Write about types of aerators in Fermenter.
4. What is protein engineering?
5. Differentiate exonucleases and endonucleases.
6. Describe the importance linkers and adapters.
7. Differentiate between exotoxins and endotoxins.
8. Define the following:
a. Cosmid b. Toxoid.
9. Write a note on DNA ligase.
10. What are monoclonal antibodies? Mention its uses.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Write the significance of microbial biotransformation, Explain various methods of biotransformation.
12. Discuss the production of Penicillin by fermentation process.
13. Discuss the preparation & purification of Dextran, Plasma substitute.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Discuss about PCR.
15. Describe in brief about cloning vectors.
16. Discuss type II Hypersensitivity and type III Hypersensitivity reactions.
17. Explain basic principles of genetic engineering.
18. What are mutations? Explain the types of mutations.
19. Write about IgG and IgE antibodies.
20. Describe the process of conjugation.
21. Explain the preparation of dried human plasma.
22. Explain the methods for immobilization of enzymes.

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FACULTY OF PHARMACY**B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025****Subject: Biopharmaceutics and Pharmacokinetics****Time: 3 Hours****Max. Marks: 75****PART – A****Note: Answer all the questions.****(10 x 2 = 20 Marks)**

1. List the mechanisms of drug absorption through GIT.
2. Describe blood brain barrier for permeation of drugs.
3. Differentiate Phase I and Phase II metabolic pathways.
4. What are the objectives of bioavailability?
5. Explain Glomerular filtration rate and its clinical significance.
6. Define Pharmacokinetics.
7. Describe AUC calculation by Trapezoid method.
8. If dose administered in IV bolus is 500mg and plasma concentration is (C_0) is 2.5 μ g/ml, calculate V_d in litres.
9. Write the equation for calculating peak plasma/serum concentration (C_p)_{max} in extravascular administration.
10. Write Michaelis Menten equation.

PART – B**Note: Answer any two questions.****(2 x 10 = 20 Marks)**

11. Describe non-renal routes of excretion of drugs.
12. Discuss about factors influencing drug absorption through GIT.
13. A dose of 500 mg of drug was given intravenously to a patient and following blood data was obtained. Assuming that the drug follows one compartment open model. Calculate all possible pharmacokinetic parameters.

Time (Hrs)	2	4	6	8	10	12	16	20
Plasma Concentration (μ g/ml)	1.83	1.01	0.58	0.33	0.18	0.10	0.031	0.012

PART – C**Note: Answer any seven questions.****(7 x 5 = 35 Marks)**

14. Describe kinetics of protein binding.
15. Write a note on Carrier mediated transport.
16. Explain methods to enhance bioavailability of poorly soluble drugs.
17. Explain the various methods for assessment of bioavailability.
18. A drug whose $K_E = 0.02\text{hr}^{-1}$ and $V_d = 20\text{Lts}$ is infused to a patient at a rate of 3mg/hr for 8hrs. What is the concentration of the drug in the body 2 hrs after the cessation of the infusion?
19. Explain factors affecting renal excretion of drugs.
20. A dose of 100mg of a drug is administered by rapid intravenous injection to a 70kg healthy adult male. Assume that the drug follows a two-compartment model and can be described by the following equation $C = 30 e^{-1.5t} + 10 e^{-0.15t}$ where $c = \mu\text{g/ml}$; $t = \text{hr}$. Calculate K_{12} ; K_{21} ; K_{13} ; V_C ; C_0 .
21. Write a note on non-linear pharmacokinetics.
22. Write the significance of different volumes of distribution in two compartment open model.

FACULTY OF PHARMACY
B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025
Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. What are the objectives of IPR?
2. Define the term Nutraceuticals.
3. What are antioxidants and give their importance.
4. Write the significance of natural excipient.
5. Define Aristas and Asawas.
6. List the plant based the research institutes in India.
7. What are the advantages of Farmers rights?
8. Give the source and health benefits of Amla
9. Give the source and interactions of Pepper.
10. Write a note on Authentication of plants.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain the Good Agricultural practices in cultivation of Medicinal plants.
12. Elaborate the health benefits and role of Nutraceuticals in management of Diabetes.
13. List the skin care products. Explain the raw materials of herbal origin used in skin care products.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Define the term patent. Give its objectives and criteria for patent award.
15. What are the objectives of Schedule T. Write a note on Infrastructural requirements?
16. Write a note on patenting aspects of Traditional knowledge.
17. Classify the Excipients. Write the advantages and disadvantages of herbal Excipients.
18. Explain the Curcumin case study.
19. Give an informative note on scope and future prospects of Herbal Industry.
20. Write the health benefits of Spirulina and Honey.
21. Describe the role of colorants. Elaborate different colorants of natural origin.
22. Give the sources and side effects and interactions of Hypericum.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, October 2024

Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define apparent volume of distribution.
2. Mention factors affecting the absorption.
3. Differentiate Passive transport and Active transports.
4. Define Absolute bioavailability and relative bioavailability.
5. Write a note on excretion of drugs through skin.
6. Write a note on enterohepatic circulation.
7. Define C_{max}, t_{max} and AUC.
8. Write the equation for calculating steady state drug concentration for one compartment open model.
9. What is protein binding? How it affects bio availability
10. What are the factors for cause of non-linear kinetics?

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Write methods to enhance the dissolution rates and bioavailability of poorly soluble drugs.
12. Derive Michaelis - Menten equation and estimate K_m and V_{max}.
13. Discuss about factors influencing absorption of drug in GIT.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write a note on factors influencing absorption of drugs.
15. Describe about the physiological barriers to the distribution of drugs.
16. Explain the biliary excretion of drugs.
17. Explain the various methods for assessment of bioavailability.
18. Discuss in-Vitro-in-Vivo correlation
19. Explain Phase-II metabolic pathways of metabolism.
20. Write in detail about compartment models.
21. Write a note on non-linear pharmacokinetics.
22. Explain methods of adjustment of dose and dosage regimen in patients with renal and hepatic failure.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2024

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define the terms 'patent' and 'IPR'.
2. What are bio pesticides? Write their advantages?
3. Define excipients. Write about any two diluents used in herbal formulations.
4. What are the principles of the siddha system of medicine?
5. What are the various sources of herbs?
6. Write features of asavas and lehyas.
7. Ashwagandha is a health food. Justify.
8. List the plant-based research institutes in India.
9. Give any three marketed herbal nutraceuticals useful in management of diabetes.
10. Write drug interactions of spirulina.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Write about stability testing of herbal drugs.
12. Describe the good agricultural practices in the cultivation of medicinal plants.
13. Describe the components of Good Manufacturing Practices (Schedule-T) for Indian system of medicine.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write a note on selection and authentication of herbs.
15. Give the preparation and standardization of ghutika/vati.
16. Give an overview of any three plant based industries.
17. Write in detail about pest management methods.
18. Write the present scope and future prospects of herbal drug industry.
19. Describe the herb-drug interactions of pepper and garlic.
20. What are Phytosomes? Write the preparation and applications of phytosomes.
21. Elaborate on the herbal materials used in formulation of oral hygiene products.
22. Give a detailed account of patenting issues of neem.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2024

Subject: Pharmacology – III

Time: 3 Hours

Max.Marks:75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Differentiate between expectorants and antitussives.
2. What are nasal decongestants?
3. Define and classify purgatives.
4. What is ulcer and explain the mechanism of action of proton pump inhibitors?
5. Explain the mechanism of action and adverse effects of penicillin's.
6. What is amoebiasis and mention any four drugs used in the treatment of amoebiasis?
7. What are the causative organisms of syphilis and gonorrhea?
8. What is teratogenicity and give examples of drugs causing teratogenic effects?
9. Write the applications of biosimilars.
10. Define Chronotherapy and write its applications.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Classify antiviral drugs. Write the pharmacology of reverse transcriptase inhibitors.
12. What is bronchial asthma? Classify anti-asthmatic drugs. Explain the pharmacology of two drugs.
13. Classify anticancer agents and explain in detail about the mechanism of action, therapeutic uses and adverse effects of antimetabolites.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write the pharmacology of respiration stimulants.
15. Write short notes on the pharmacology of H₂ receptor blockers.
16. What is clotrimoxazole and mention advantages?
17. Write the classification of anti-tubercular agents and write MOA and adverse effects of Isoniazid.
18. Classify antifungal agents and write the MOA and adverse effects of amphotericin B.
19. Write about the treatment for Urinary tract infections.
20. What are immunosuppressants? Classify them.
21. Define toxicology and explain the types of toxicity studies.
22. What are the different types of rhythms? Explain about circadian rhythm with examples.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2024

Subject: Medicinal Chemistry-III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Write the mechanism of action of Pencillins.
2. Write the MOA and uses of Streptomycin & Sulbactam.
3. Give the MOA and uses of Erythromycin.
4. Write the structure and uses of Chloroquine.
5. Write the structure and uses of Isoniazid.
6. Give the MOA and uses of chloramphenicol.
7. Write the structure and uses of Trimithoprim.
8. Give the MOA and uses of Fluconazole.
9. Define combinatorial chemistry.
10. Define Partition coefficient and Hammett's electronic parameter.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Define Beta lactam antibiotics and explain the classification, SAR and chemical degradation of Cephalosporins?
12. Write the chemical classification of antitubercular agents. Write the synthesis, mode of action and uses of Para amino salicylic acid?
13. Explain mechanism of action and SAR of Sulphonamides and Write the synthesis of Sulfacetamide?

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write the chemical degradation of Pencillins?
15. Give the structure, SAR and epimerization of Tetracyclines.
16. Write the structure, synthesis and uses of Pamaquine.
17. Give a note on Prodrugs?
18. Explain the structure, synthesis and uses of Tolnaftate?
19. Write the structure, synthesis and uses of Dapsone?
20. Write a note on SAR of Quinolines?
21. Write the structure, synthesis and uses of Metronidazole?
22. Give the structure, synthesis and uses of Mebendazole?

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, October 2024

Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define the term TQM.
2. What is QbD?
3. Mention different records in a Pharmaceutical Industry.
4. List out the contents of a purchase specification.
5. Name different secondary packing materials.
6. Mention the equipment in quality control laboratory.
7. Write different methods to give a complaint to an industry.
8. What is SOP?
9. Why calibration of instruments is required?
10. Give types of validation.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain principles and procedure involved in NABL accreditation.
12. Discuss about different aspects of premises for a pharmaceutical company.
13. Discuss about all provisions of GLP in brief.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write short notes on QA
15. Explain the steps for ISO9000 registration.
16. Write a note on personnel responsibilities in QA department.
17. Discuss quality control of secondary packing material
18. How a complaint is evaluated in Pharmaceutical Industry?
19. Explain the contents of a master formula record.
20. Explain calibration of pH meter.
21. Discuss on general principles of analytical method validation.
22. Give informative notes on warehousing practices.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, October 2024

Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define vaccines. Mention the differences between attenuated and killed vaccines.
2. What are nucleases? Explain the type of nucleases.
3. Write a note on transposons.
4. Define mutants and write a brief note on mutants.
5. What are foam controlling materials?
6. What are toxins? Explain the method of conversion of toxin to toxoid.
7. What are vectors? Write the ideal properties of vectors.
8. Differentiate between prokaryotic and eukaryotic organisms.
9. Write the preparation and uses of human fibrinogen.
10. Enlist applications of biotechnology to pharmaceutical industry.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. What is Hybridoma technology? Explain the steps involved in the production of monoclonal antibodies and applications.
12. Explain the typical structure of Immunoglobulin with neat labelled diagram and add a note on types and functions of Antibodies.
13. Explain the production of insulin by rDNA technology.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain the stability of official vaccines.
15. Explain the collection, processing and storage of whole human blood.
16. Describe fermenter with a neat labelled diagram.
17. Write in detail about enzyme linked immunosorbent assay.
18. Explain type I and type II hypersensitivity reactions.
19. Write the applications of genetic Engineering in medicine.
20. Explain pBR322 and pUC vectors.
21. Discuss about PCR.
22. Describe protein engineering.

FACULTY OF PHARMACY
B. Pharmacy VI - Semester (PCI) (Backlog) Examination, April 2024
Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define the term quality assurance.
2. Mention different ICH guidelines.
3. Give the list of different designations of personnel in QA department.
4. List out the contents of a purchase specification.
5. Name different secondary packing materials.
6. What are the benefits of NABL accreditation?
7. Write different methods to give a complaint to an industry.
8. What is quality audit?
9. Write the significance of calibration.
10. Mention different distribution records?

PART-B

Note: Answer any two questions

(2 x 10 = 20 Marks)

11. Explain total quality management system (TQM) in detail.
12. Discuss about different aspects of premises for a pharmaceutical company.
13. What is validation? Write its significance and explain different types of validation in brief.

PART-C

Note: Answer any seven questions

(7 x 5 = 35 Marks)

14. Write short notes on QbD.
15. Explain the steps for ISO9000 registration.
16. Discuss quality control of rubber closures.
17. Write notes on general provisions required to maintain GLP.
18. What is SOP? Write the general contents of an SOP.
19. Explain recalling procedure for a pharmaceutical product.
20. Write calibration of pH meter.
21. Discuss on qualification of UV-Visible spectrophotometer.
22. Give informative notes on warehousing practices.

FACULTY OF PHARMACY
B. Pharmacy VI - Semester (PCI) (Backlog) Examination, April 2024
Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Give the composition and functions of ASU DTAB.
2. What is Biopiracy and give its disadvantages.
3. Define Excipients and give ideal properties of excipients.
4. Give the principles of Siddha system of medicine.
5. List the principles of Homeopathy system of medicine.
6. Define the terms Herbal medicine and Traditional medicine.
7. What are Biopesticides and give their advantages.
8. Give the health benefits of Ashwagandha
9. List the plant based research Institutes.
10. What are colorants and list the herbal colorants.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Define the evaluation of drugs. Describe the WHO guidelines for evaluation of drugs.
12. Describe the good agricultural practices in cultivation of medicinal plants.
13. Describe the components of Good Manufacturing Practices (Schedule-T).

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write note on selection and authentication of herbs.
15. Give the preparation of Aristas and Asawas.
16. What are Nutraceuticals? Give the classification and scope of Nutraceuticals.
17. Write the health benefits of Spirulina and Alfaalfa.
18. Define patent. Write the criteria, objective and advantages of patent.
19. Describe the herb- drug interactions of Pepper and Garlic.
20. What are Phytosomes. Write the preparation and applications of phytosomes.
21. Write the importance and methods of stability testing of herbal drugs.
22. List the hair care products. Write the importance of raw materials used in Hair care products.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Backlog) Examination, March 2024

Subject: Pharmacology-III

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define the terms malignancy and poison.
2. What are decongestants and anti tussives? Give examples.
3. Give the adverse drug reactions of Aminoglycosides.
4. What is teratogenicity? Give examples.
5. Differentiate between narrow spectrum and broad spectrum antibiotics with examples.
6. Write the uses of Laxatives.
7. Write the mechanism of monoclonal antibodies.
8. What is HAART?
9. Write the mechanism of action of Methylxanthines.
10. What is genotoxicity?

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Classify anti cancer drugs with examples. Write the mechanism, pharmacokinetics, uses and adverse drug reactions of antimetabolites.
12. Write the general principle measures of treatment of poisoning and explain organophosphorus poisoning.
13. Classify anti viral drugs with examples. Write the mechanism of action, Pharmacokinetics, adverse drug reactions and uses of NRTI's.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Classify anti asthmatics with examples. Write a detail note on bronchodilators in the treatment of asthma.
15. Classify anti leprotic drugs with examples and explain pharmacology of dapsone.
16. Write in brief about the circadian rhythm and its impact on pharmacological therapy with examples.
17. Briefly write about acute, sub acute and chronic toxicity studies.
18. Classify anti tussives with examples. Write their mechanism and uses.
19. Write the mechanisms of antibiotic resistance development.
20. Classify anti-fungal drugs with examples. Write about azoles.
21. What are alkylating agents? Classify them. Write mechanism and Adverse drug reaction of them.
22. Briefly write about the role of Calcineurin inhibitors as immuno suppressants

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FACULTY OF PHARMACY
B. Pharmacy VI - Semester (PCI) (Backlog) Examination, April 2024
Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Write a brief note on plasmids.
2. Explain restriction endonucleases.
3. Write about types of aerators in Fermenter.
4. Mention the applications of Hybridoma technology.
5. What are vectors? Write the ideal properties of vectors.
6. Describe the importance of linkers and adapters.
7. Differentiate between exotoxins and endotoxins.
8. What are the organisms responsible for the production of amylases and lipases?
9. Write a note on DNA ligase.
10. What is genetic engineering?

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. What are plasma substitutes? Discuss in detail about the preparation of dextran.
12. Discuss the production of Penicillin by fermentation process.
13. Discuss the structure and function of Major Histocompatibility Complex.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain the southern blotting technique.
15. Explain the preparation of dried human plasma and dried human serum.
16. Differentiate between 'type II Hypersensitivity' and 'type III Hypersensitivity' reactions.
17. Write short note on vitamin B12 Production by fermentation.
18. What are mutations? Explain the types of mutations.
19. Write about IgG and IgE antibodies.
20. Describe the process of transduction.
21. Discuss the applications of biosensors.
22. Explain protein engineering.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Backlog) Examination, April 2024

Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define absorption.
2. Define Noyes and Whitney equation and its application.
3. What is plasma protein-drug binding and tissue drug binding.
4. Define bioavailability.
5. Write a note on Volume of distribution.
6. What are the different methods used to calculate the AUC?
7. Write the objectives of bioavailability studies.
8. Define Absolute bioavailability and Relative bioavailability.
9. Write a note on steady state.
10. Describe hepatic clearance.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain mechanisms of drug absorption with diagram.
12. Describe Bioequivalence study protocols.
13. Derive Michaelis - Menten equation and estimate K_m and V_{max} .

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write in detail about pH partition hypothesis and its limitation.
15. Explain Phase-I reactions of metabolism.
16. Write the factors and significance of protein drug binding.
17. Describe about physiological barriers to the distribution of drugs.
18. Describe renal excretion of drugs.
19. Write the factors causing Non-Linearity.
20. Write methods to enhance the bioavailability of poorly soluble drugs.
21. Write different methods for Assessment of Bioavailability.
22. Explain methods of adjustment of dose and dosage regimen in patients with hepatic failure.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Backlog) Examination, March 2024

Subject: Medicinal Chemistry-III

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define & classify antibiotics?
2. Write the MOA and uses of Ampicillin & Tetracycline?
3. Give the structure and uses of Mefloquine?
4. Write the MOA and uses of Clindamycin & Azithromycin?
5. Write the structure of Ethambutol & Ciprofloxacin?
6. Give the structure and uses of para amino salicylic acid.
7. What are folate reductase inhibitors?
8. Give the structure and uses of Mebendazole?
9. Write the applications of prodrugs?
10. Define Taft's steric parameter and Hammett's electronic parameter?

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Define Beta lactam antibiotics and explain the classification, SAR and chemical degradation of Penicillins?
12. Give the chemical classification of antiviral drugs. Write the synthesis, mode of action and uses of any one antiviral drug.
13. Write the chemical classification of antifungal agents. Write the synthesis, mode of action and uses of Miconazole?

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Classify Beta lactam antibiotics with examples?
15. Write the structure, SAR and uses of Tetracyclines?
16. Write the structure, synthesis, mode of action and uses of Chloramphenicol?
17. Give a short note on Prodrugs?
18. Explain the structure, synthesis and uses of Chloroquine?
19. Write the structure, synthesis and uses of Dapsone?
20. Give the concept and applications of combinatorial chemistry?
21. Write the structure, synthesis and uses of Sulfamethoxazole?
22. Give the structure, synthesis and uses of Isoniazid?

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FACULTY OF PHARMACY
B. Pharmacy VI-Semester (PCI) (Main& Backlog) Examination, October 2023
Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max.Marks:75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Classify the Immunoglobulins.
2. Give a brief note on DNA ligase.
3. Write the difference between toxoid and anti-toxin.
4. Describe in brief about restriction endonucleases.
5. Describe in brief about transposons.
6. Write about storage condition of vaccines.
7. Define Mutation. What are the various types of mutagenic agents?
8. Describe the spargers used in fermentation technology.
9. Give the examples for Class I MHC antigens.
10. Draw the general structure of bacteriophage.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. What is recombinant DNA technology, Explain the production of Insulin by r-DNA Technology?
12. Write the significance of microbial biotransformation, Explain various methods of biotransformation.
13. Describe fermentative production of Pencillin.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain basic principles of genetic engineering.
15. Explain production and uses of Pencillinase enzyme.
16. Explain in brief about the significance of polymerase chain reaction.
17. Explain in brief about cloning vectors.
18. Explain the structure of any one immunoglobulin.
19. What is hybridoma technology and write its applications.
20. Write in-detail about biosensors used in pharmaceutical industry.
21. Write in detail about preparation of Toxoids.
22. Explain about various plasma substitutes.

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Main & Backlog) Examination, October 2023

Subject: Pharmacology - III

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 marks)

1. What are antiemetics?
2. What are expectorants?
3. Define poisoning and list the antidotes used for poisoning.
4. Explain cell cycle.
5. What are the causative organisms of syphilis and gonorrhoea?
6. Define acute and sub-acute toxicity.
7. What are respiratory stimulants?
8. Write about biosimilars.
9. What are causes and symptoms of tuberculosis?
10. Define and classify purgatives.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. What are immunosuppressants? Write the MOA, therapeutic uses and adverse effects of inhibitors of cytokine production or action.
12. Discuss the symptoms and treatment of
 - (a) Barbiturate poisoning
 - (b) organophosphorous poisoning
13. Classify the agents used in treatment of peptic ulcer disease. Write about the pharmacological actions and therapeutic uses of Ranitidine and Omeprazole.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write a note on cephalosporin antibiotics.
15. Describe the symptoms and treatment of lead poisoning.
16. Explain the disease pathology and therapeutic agents for COPD.
17. Write short notes on urinary tract infections.
18. Mention the MOA, therapeutic uses and adverse effects of Isoniazid.
19. Explain the causes and therapy of peptic ulcer.
20. Write short notes on monoclonal antibodies.
21. List the sexually transmitted diseases and explain any one of them.
22. Discuss the therapy for cough.

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FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Main & Backlog) Examination, October 2023

Subject: Medical Chemistry-III

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. What are Monobactams?
2. Write the uses of Neomycin & Oxytetracycline.
3. Write the uses of Clindamycin.
4. Write the uses of Erythromycin & Pyrimethamine.
5. Write the uses of Cycloserine & Ciprofloxacin.
6. Give the uses of Miconazole and Mebendazole.
7. What are folate reductase inhibitors?
8. Write the mechanism of action of Macrolides.
9. Write the applications of prodrugs.
10. Define Partition coefficient, Hammett's electronic parameter.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. (a) Write a note on β -lactam antibiotics.
(b) Write the synthesis and uses of Chloramphenicol.
12. Give the chemical classification of antitubercular drugs. Write the synthesis, mode of action and uses of Isoniazid.
13. Explain mechanism of action and SAR of Sulphonamides and Write the synthesis of Sulfacetamide.

PART - C

Note: Answer any seven questions

(7 x 5 = 35 Marks)

14. Give a note on chemical degradation of cephalosporins.
15. Write the structure, SAR and uses of Streptomycin.
16. Write the structure, synthesis, mode of action and uses of Dapsone.
17. Give a short note on Prodrugs.
18. Write the structure, synthesis and uses of Chloroquine.
19. Write the structure, synthesis, mode of action and uses of Acyclovir.
20. Give the concept and applications of combinatorial chemistry.
21. Write the structure, synthesis, mode of action and uses of Diethylcarbamazine citrate.
22. Give the structure, synthesis and uses of Metronidazole.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, October 2023

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 marks)

1. Define Herb and Herbal medicine.
2. Classify nutraceuticals with examples.
3. Differentiate Asava and Arista preparations with examples.
4. Give various parameters involved in the evaluation of Churna,
5. Give the significance of authentication of plant material.
6. Explain Fenugreek as health food
7. Give the composition and functions of ASU DCC.
8. What are the objectives of Schedule Z for ASU drugs?
9. Explain raw material of herbal origin used in skin care products
10. Write about natural sweeteners.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain WHO and ICH guidelines for the evaluation of herbal drugs.
12. Describe the role of Ashwagandha and Ginger as a nutraceuticals.
13. Explain the sources and processing of herbal raw materials.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write a note on organic farming.
15. Explain the role of nutraceuticals in CVS disorders.
16. Explain herb-drug interactions of Hypericum and Garlic.
17. Describe biopiracy case of Neem.
18. Explain in detail about bioprospecting.
19. Explain the methods of preparation and standardization of Bhasma.
20. Give the composition and functions of ASU DTAB.
21. Explain the authentication of herbal material.
22. Explain the principle involved in Ayurveda system of medicine.

FACULTY OF PHARMACY**B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, October 2023****Subject: Bio-pharmaceutics and Pharmacokinetics****Time: 3 Hours****Max. Marks: 75****PART-A****Note: Answer all the questions.****(10 x 2 = 20 Marks)**

1. Write any three differences between active absorption and passive absorption.
2. Describe any three factors affecting distribution of drugs.
3. Define renal clearance.
4. Write a note on excretion of drugs through lungs.
5. Define absolute bioavailability and relative bioavailability.
6. Define C_{max} , t_{max} and AUC?
7. If equation of the curve is $C=30.e^{-0.46t}$ for a drug administered by IV route and following one compartment open model, then calculate its biological half-life.
8. Write Michaelis menten equation.
9. Write formulas for calculating loading dose and maintenance dose.
10. Describe the cause of non-linearity in absorption.

PART-B**Note: Answer any two questions.****(2 x 10 = 20 Marks)**

11. A 50kg woman was given a single IV dose of an antibacterial drug at a dose level of 6mg/kg. Blood samples were taken at various time intervals. The concentration of the drug was determined in the plasma fraction of each blood sample and the following data was obtained. Assume that it follows one compartment open model. Calculate all possible Pharmacokinetic parameters.

Time (Hrs)	0.25	0.5	1.0	3	6	12	18
Plasma Concentration (mg/ml)	8.21	7.87	7.23	5.15	3.09	1.11	0.4

12. Describe factors influencing distribution of drugs.
13. Describe methods to enhance dissolution rate of drugs.

PART-C**Note: Answer any seven questions****(7 x 5 = 35 Marks)**

14. Discuss about dosage form factors affecting absorption of drugs.
15. Describe tissue permeability of drugs.
16. Explain briefly factors affecting protein-drug binding.
17. Explain conjugation reactions in metabolism of drugs.
18. Discuss about in-vitro dissolution models.
19. Describe estimation of K_m and V_{max} in non-linear kinetics.
20. Derive kinetic parameters for IV bolus administration in Two compartment open model.
21. Describe factors causing non-linearity.
22. A 650mg I.V.dose of a drug is administered to a 65kg subject, the plasma drug concentration was found to decline biexponentially. The data that best describes the drug kinetics $C=67.e^{-14t} + 33.e^{-3t}$; C is in mg/ml. Calculate the following parameters: $t_{1/2\alpha}$, $t_{1/2\beta}$, $t_{1/2}$, V_c , V_p , $V_d\beta$, V_{darea} , V_{dss} .

FACULTY OF PHARMACY

B. Pharmacy II Semester (PCI) (Main & Backlog) Examination, October 2023

Subject: Computer Application in Pharmacy

Time: 2 Hours

Max. Marks: 50

PART – A

Note: Answer any two questions from following.

(2 x 10 = 20 Marks)

1. Define number system. Explain the conversion process from binary to octal and binary to hexadecimal.
2. (i) Explain different generations of programming languages.
(ii) How Barcode Labels will Work?
3. (i) Explain the impact of bioinformatics on vaccine design and development.
(ii) Write a note on LIMS (Laboratory Information Management Systems)

PART – B

Note: Answer any five questions from following.

(6 x 5 = 30 Marks)

4. Explain the process for binary addition and binary subtraction.
5. Write different types of Cascading Style Sheets with examples.
6. What is a database? Explain about MySQL Components.
7. Explain about Mathematical modelling in drug design.
8. Explain different types of Databases in Bioinformatics.
9. Write note on CDS (Chromatographic data systems).
10. Explain the process of planning and managing the project.
11. How does Pharma information system works?

FACULTY OF PHARMACY

B. Pharm VI-Semester (PCI) (Main & Backlog) Examination, November 2023

Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Write any three parameters each for GMP and TQM.
2. Define the term quality control.
3. Mention different personal records.
4. What is the importance of a specification for any activity?
5. List different secondary packing materials.
6. What is GLP?
7. Mention different methods to give complaint to an industry.
8. What is SOP?
9. Define the term calibration.
10. Write the scope of validation.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Discuss the details of QbD.
12. Explain the various aspects of premises of a pharmaceutical industry.
13. Write the calibration procedure of a P^H meter.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write short notes on ICH guidelines.
15. Give informative notes on ISO9000 series.
16. Write about maintenance of stores for raw materials.
17. Explain quality control tests for rubber closures.
18. What are the general provisions for GLP?
19. Write about recalling and waste disposal procedures.
20. Explain the contents of master formula record.
21. Discuss on general principles of analytical method validation.
22. Explain good warehousing practice of a Pharmaceutical industry.

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Code No: E-12199/PCI

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Backlog) Examination, March / April 2023
Subject: Medicinal Chemistry-III

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define & Classify antibiotics?
2. Write the structure of Penicillin-V & Oxytetracycline?
3. Write the structure and uses of Kanamycin?
4. Define prodrugs?
5. Write the structure and mechanism of action of Chloramphenicol?
6. Write the structure of Ethionamide & Ethambutol?
7. Define Taft's steric parameter & Hammett's electronic parameter?
8. Write the mechanism of action of Aminoglycosides?
9. Write the mode of action of Antifungal agents?
10. What are β -lactamase inhibitors?

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Give the various classes of antiviral drugs. Write the synthesis & mode of action of Acyclovir?
12. Define β -lactam antibiotics and explain the classification, SAR and mode of action of Penicillins?
13. Write the various classes of antifungal agents. Write the synthesis & mode of action of Miconazole?

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Discuss the chemical degradation of cephalosporins?
15. Give the mechanism of action, SAR and uses of Tetracycline?
16. Explain the structure, synthesis, mode of action and uses of Dapsone?
17. Write the applications of Prodrugs?
18. Write the structure, synthesis, mode of action and uses of Chloroquine?
19. Give the various classes of Anthelmintics & write the synthesis of Mebendazole?
20. Give a note on solid phase synthesis in combinatorial chemistry?
21. Give the synthesis, mode of action and uses of Trimethoprim?
22. Write the structure, synthesis, mode of action and uses of Ciprofloxacin?





Code No. E-12200/PCI

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Backlog) Examination, March 2023

Subject: Pharmacology-III

Time: 3 Hours

Max. Marks: 75

PART- A

Note: Answer all the questions.

(10 X 2 = 20 Marks)

1. Differentiate between laxatives and purgatives.
2. What is ulcer and explain the mechanism of action of H₂ receptor blockers?
3. What is mutagenicity and give examples of drugs causing mutagenic effects.
4. What are macrolides? Give examples.
5. Write about the treatment for heavy metal poisoning
6. Define circadian rhythm and circannual rhythm
7. What are nasal decongestants?
8. Define monoclonal antibodies and write their applications.
9. What is amoebiasis and give any four examples of drugs?
10. Define teratogenicity and mutagenicity.

PART- B

Note: Answer any two questions.

(2 X 10 = 20 Marks)

11. Classify anticancer agents and explain in detail about the mechanism of action, therapeutic uses and adverse effects of alkylating agents
12. What is bronchial asthma? Classify anti-asthmatic drugs. Explain the pharmacology of any two drugs.
13. Classify antimalarial drugs. Write the pharmacology of any two classes of drugs

PART- C

Note: Answer any seven questions.

(7 X 5 = 35 Marks)

14. Write short notes on the pharmacology of proton pump inhibitors.
15. Explain the MOA and adverse effects of aminoglycosides and chloramphenicol.
16. Explain the general principles of treatment of poisoning.
17. Classify antitubercular agents and write the MOA and adverse effects of isoniazid
18. What are immunosuppressants and write about their applications
19. Write about the treatment for urinary tract infections
20. Define toxicology and explain the types of toxicity studies.
21. Classify antiviral agents and write the MOA and adverse effects of acyclovir.
22. Classify penicillins and write a note on β -lactam inhibitors?





Code No: E-12201/PCI

FACULTY OF PHARMACY

B.Pharmacy VI Semester (PCI) (Backlog) Examination, March-2023

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all questions.

(10 x 2 = 20 Marks)

- 1 Define herbs and herbal preparations.
- 2 Define Asavas and churnas
- 3 Write the scope of Nutraceuticals.
- 4 Define herbal food interaction with suitable examples.
- 5 Define herbal excipients with examples
- 6 Define herbal cosmetics with examples.
- 7 Define Bioprospecting and patent.
- 8 Write the constitution of ASU DCC
- 9 Write the scope and future prospectus of herbal drug industry
- 10 Write objectives of schedule T

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

- 11 Explain the guidelines of cGAP in collection of medicinal plants.
- 12 Write a detail note on herbal formulations – tablets
- 13 Write an elaborate note on schedule Z

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

- 14 Explain the preparation and standardization of Churnas.
- 15 Write a brief note on Biodynamic Agriculture.
- 16 Write a note on herb drug interactions with suitable examples.
- 17 Explain about the side effects and interactions of Garlic and Pepper.
- 18 Write a brief note on Antioxidants in herbal preparations.
- 19 Write a note on Phytosomes.
- 20 Explain in detail about ASU DTAB and IPR
- 21 Give a brief note on Schedule T.
- 22 Write a brief note on herbal drug industries present scope and future prospectus





Code No: E-12202/PCI

FACULTY OF PHARMACY**B. Pharmacy VI- Semester (PCI) (Backlog) Examination, March-2023****Subject : Biopharmaceutics and Pharmacokinetics****Time: 3 Hours****Max.Marks:75****PART-A****Note: Answer all the questions.****(10x2=20marks)**

1. Write Henderson Hasselbach equation for weak acids and weak bases
2. Describe any one barrier for permeation of drugs.
3. Describe the effect of gastrointestinal contents on drug absorption orally.
4. Define bioavailability and bioequivalence.
5. Give pictorial representation of enterohepatic cycling
6. Explain the terms MEC, MSC and therapeutic range.
7. If equation of the curve is $C = 25 e^{-0.46t}$ for a drug administered by IV route and following one compartment open model. then calculate its Biological half life
8. Write the equation for calculating steady state drug concentration for one compartment open model administered by IV infusion.
9. The equation that best fits the pharmacokinetics of paracetamol after oral administration of 500mg dose is $C = 1.18 (e^{0.24t} - e^{-6t})$ What is its peak time?
10. Define non-linear pharmacokinetics

PART-B**Note: Answer any two questions****(2x10=20Marks)**

11. A 59kg woman was given a single IV dose of an antibacterial drug at a dose level of 6mg/kg. Blood samples were taken at various time intervals. The concentration of the drug was determined in the plasma fraction of each blood sample and the following data was obtained. Assume that it follows on compartment open model. Calculate all possible Pharmacokinetic parameters

Time (Hrs)	0.25	0.5	1.0	3	6	12	18
Plasma Concentration (mg/ml)	8.21	7.87	7.23	5.15	3.09	1.11	0.4

12. Describe the different mechanisms of drug absorption through GIT
13. Discuss about factors affecting protein – drug binding and clinical significance of protein binding of drugs

PART-C**Note: Answer any seven questions****(7x5=35Marks)**

14. Write a note on dosage form characteristics influencing drug absorption.
15. Describe about the physiological barriers to the distribution of drugs. Any three
16. Explain phase II metabolic pathway of drugs.
17. Explain the various methods for assessment of bioavailability

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Code No: E-12203/PCI

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Backlog) Examination, April 2023

Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10x2=20marks)

1. What is genetic engineering?
2. Write a brief note on plasmids.
3. Write a note on DNA ligases.
4. What are nucleases? Explain the types nucleases
5. Define vaccines. Write the differences between attenuated and killed vaccines.
6. Write the preparation and uses of human Thrombin
7. What is biosensor? Write the main components used in biosensor.
8. Write about foam control equipment.
9. Write a note on transposons
10. Write the organisms responsible for the production of Amylases and Lipases

PART-B

Note: Answer any two questions

(2x10=20Marks)

11. Explain the production of insulin byr DNA technology.
12. Explain the production of penicillin by fermentation technology.
13. What is hybridoma technology? Explain the production of monoclonal antibodies

PART-C

Note: Answer any seven questions

(7x5=35Marks)

14. What are vectors? Explain insertion and replacement Vectors (Bacteriophage vector).
15. Write the applications of genetic Engineering in medicine
16. Explain the stability of official vaccines.
17. Explain generalized transduction and specialized transduction
18. What is recombination? Explain general mechanism of recombination.
19. Explain the collection, processing and storage of whole human blood.
20. Draw a neat labeled diagram of a typical fermentor
21. Explain the aeration and agitation process in fermentation.
22. Write about IgG and IgE antibodies.



Code No: E-12204/PCI

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Backlog) Examination, April -2023

Subject: Quality Assurance

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. List the ICH Q documents
2. Explain the concept of QSEM
3. What are the functions of a warehouse?
4. What is the role of study director in a non-clinical lab testing?
5. What are the objectives of sanitation in a drug manufacturing area?
6. What is meant by secondary packaging materials? Give examples.
7. Define analytical method validation and list the parameters
8. What is the importance of distribution record?
9. List the standards used for the qualification of UV spectrophotometer.
10. Define validation master plan. What is its use?

PART-B

Note: Answer any two questions

(2 x 10 = 20 Marks)

11. Describe the concept of TQM?
12. What are the benefits of NABL accreditation? Describe NABL accreditation procedure
13. Explain in detail, the purpose, production and contents of master formula record

PART-C

Note: Answer any seven questions

(7 x 5 = 35 Marks)

14. Explain the elements of QBD.
15. Explain the location, construction and sanitation of plant
16. Explain the control of contamination in pharma industry
17. What are the QC tests for glass as a packaging material?
18. What are the contents of a GLP protocol?
19. What is mean by recall? Explain the recall process of pharmaceutical products
20. Define and explain the contents of Master Formula Record
21. What are the parameters to be checked in the calibration of UV spectrophotometer?
Explain any two in detail.
22. What is the difference between calibration, qualification and validation?



FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, August 2022

Subject: Pharmacology-III

Time: 3 Hours

Max. Marks: 75

PART- A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Differentiate between expectorants and antitussives.
2. What are antiemetics?
3. What is ulcer and explain the mechanism of action of proton pump inhibitors?
4. What is teratogenicity and give examples of drugs causing teratogenic effects.
5. What are fluoroquinolones? Give examples.
6. Write about the treatment for organophosphorous poisoning.
7. Define Chronotherapy and write its applications.
8. Write a note on carminatives.
9. Define monoclonal antibodies and write their applications.
10. What is amoebiasis and mention any four drugs used in the treatment of amoebiasis?

PART- B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Classify anticancer agents and explain in detail about the mechanism of action, therapeutic uses and adverse effects of antimetabolites.
12. What is bronchial asthma? Classify anti-asthmatic drugs. Explain the pharmacology of any two drugs.
13. Classify antiviral drugs. Write the pharmacology of reverse transcriptase inhibitors.

PART- C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write short notes on the pharmacology of H₂ receptor blockers.
15. Explain the MOA and adverse effects of tetracyclines and penicillins.
16. Explain the general principles of treatment of poisoning.
17. Classify antifungal agents and write the MOA and adverse effects of amphotericin B.
18. Write short note on immunostimulants.
19. Write about the treatment for urinary tract infections.
20. Define toxicology and explain the types of toxicity studies.
21. Discuss the clinical symptoms and management of morphine poisoning.
22. What is clotrimoxazole and mention its advantages?

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FACULTY OF PHARMACY
B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination,
September 2022
Subject: Quality Assurance

Time: 3Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

- 1) What is SOP.? Explain.
- 2) What is Warehousing? Explain.
- 3) Explain of specification.
- 4) What is Sources of impurities? Explain.
- 5) What is short note on Batch Formula Record.
- 6) Define ISO 14000
- 7) Define Quality by design (QbD)
- 8) Define Quality Assurance.
- 9) Define GMP.
- 10) Explain of trend (OOT)

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

- 11) Write briefly about Quality control test for Containers, rubber closures.
- 12) Define ICH. Explain about ICH Guidelines.
- 13) Write briefly about importance, scope of validation and types of validation.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

- 14) Write a short note on ISO 9000 series?
- 15) Write a short note on Total Quality Management (TQM)
- 16) List out what are the different analytical instrumentation used in the estimation of impurities.
- 17) Explain about validation master plan.
- 18) Explain about Personnel responsibilities, training, and hygiene.
- 19) Describe SOP, Quality audit and Quality Review.
- 20) Explain about Equipment selection, purchase specifications and maintenance.
- 21) Explain ISO certification procedure and its advantages?
- 22) Explain about calibration, qualification & validation.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, August - 2022

Subject: Medicinal Chemistry - III

Time: 3 Hours

Max. Marks: 75

**Note: Answer All Questions from Part –A, Any two Questions from Part-B.
and Any seven Questions from Part-C**

PART – A (10 X 2 = 20 Marks)

1. Write the synthesis, mechanism of action and uses of Metronidazole.
2. Mention any six Quinoline drugs.
3. What are Monobactams? Give examples with one structure.
4. Mention any six ant tubercular agents.
5. Write about the chemical degradation of Penicillins.
6. Mention any six antiviral drugs.
7. What is Cotrimoxazole? Give its uses.
8. Give examples of antifungal antibiotics.
9. What are Macrolides? Give examples.
10. Mention any six anti protozoal agents

PART- B (2 X 10 = 20 Marks)

11. Classify antibiotics based on chemical structure with examples.
12. Write a note on anti tubercular drugs.
13. Classify anti-malarial agents with examples. Give the synthesis, MOA and uses of any one drug.

PART - C (7 X 5 = 35 Marks)

14. Write the synthesis, mode of action and therapeutic uses of Para amino salicylic acid and isoniazid.
15. Discuss the SAR of quinolones.
16. Give the synthesis, MOA and uses of any two anti fungal agents.
17. What are sulfonamides? Give their importance in chemotherapy.
18. Write about antiviral drugs.
19. Give the applications of Prodrugs with examples.
20. Classify anti-tubercular drugs with examples.
21. Write about solid phase synthesis in combinatorial chemistry.
22. Write a note on anthelmintics.

FACULTY OF PHARMACY

**B. Pharmacy VI – Semester (PCI) (Main & Backlog) Examination,
September 2022**

Subject: Pharmaceutical Biotechnology

Time: 3Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

- 1) Define Immobilization. What are the types of immobilization?
- 2) What is protein engineering?
- 3) What are DNA ligases.
- 4) What are nucleases? Explain the types of nucleases.
- 5) What are vaccines? Enlist types of vaccines.
- 6) What are Plasma substitutes.
- 7) What are mutants? Types of mutants.
- 8) What are foam controlling materials
- 9) What are transposons.
- 10) Write the organisms responsible for the production of Amylases and Lipases.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

- 11) Explain the production of insulin by rDNA technology
- 12) Explain the production of penicillin by fermentation technology
- 13) What is hybridoma technology? Explain the production of monoclonal antibodies.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

- 14) Explain pBR322 and pUC vectors
- 15) Write the applications of genetic Engineering in medicine
- 16) Explain the stability of official vaccines
- 17) Explain Enzyme linked immunosorbent Assay.
- 18) What is recombination? Explain general mechanism of recombination.
- 19) Explain the collection, processing and storage of whole human blood.
- 20) Explain the preparation of dried human plasma and dried human serum.
- 21) Explain type I and type II hypersensitivity reactions.
- 22) Write about IgG and IgE antibodies.

FACULTY OF PHARMACY

B. Pharmacy VII - Semester (PCI) (Backlog) Examination, September 2022

Subject: Novel Drug Delivery Systems

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all questions.

(10 x 2 = 20 Marks)

1. Define terms sustained, controlled and targeted release dosage forms.
2. Write ideal characters suitable for selection of drug for controlled drug delivery system.
3. Explain about inflatable systems.
4. Explain the Nasal and Pulmonary routes of drug delivery.
5. Write the advantages and disadvantages of gastroretentive drug delivery system.
6. Explain various coating materials used in microencapsulation.
7. Write a note on transmucosal permeability.
8. What is floating time and floating lag time.
9. Write the applications of monoclonal antibodies.
10. Compare and contrast liposomes and niosomes.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Explain in detail physiochemical and biological factors affecting controlled release formulations.
12. Explain in detail coacervation phase separation method with suitable examples.
13. Discuss about advantages and disadvantages and development of intra uterine devices and applications.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Discuss the classification and applications of polymers used in controlled drug delivery system.
15. Explain the theories of mucoadhesion.
16. Explain about factors affecting permeation in transdermal drug delivery system.
17. Discuss the approaches used in development of gastroretentive drug delivery system.
18. Explain about nasal sprays and nebulizers.
19. Explain about osmotic pump.
20. Discuss the ocusert with neat sketch.
21. Explain the preparation methods of nanoparticles.
22. Explain dry powder and metered dose inhalers.

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FACULTY OF PHARMACY

B. Pharmacy VI -Semester (Main & Backlog) Examination, September 2022

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART – A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Define and exemplify Ayurvedic product and herbal drug preparation.
2. Write principle of Unani system of medicine.
3. Write about Breeder's right.
4. Write composition and functions of ASUDTAB.
5. Write about spirulina as health food.
6. Define asavas and arishtas. Give two examples each.
7. Write about health foods.
8. What is traditional knowledge? Give examples.
9. Write about any two natural binders.
10. Classify nutraceuticals giving examples.

PART – B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Write about principles of integrated pest management. Give a detailed account of biopesticides.
12. Elaborate on the WHO guidelines for assessment of herbal drugs.
13. Write a note on: a) Phytosomes b) Herbal disintegrants.

PART – C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain about the methods for identification and authentication of herbs.
15. Write a note on preparation and evaluation of bhasmas.
16. Discuss the role of nutraceuticals in the prevention, therapy and management of cancer.
17. Write the role of antioxidants in herbal formulations. Give a brief account of these materials.
18. Write a short note on schedule Z.
19. What is bioprospecting policy? Give an overview of the process of bioprospecting herbs as medicines.
20. Give a brief account of herbal hair dyes.
21. Write a detailed note on herb drug interactions.
22. List objectives of Schedule T.

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Backlog) Examination, February / March 2022

Subject: Pharmaceutical Biotechnology

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all questions:

(10 x 2 = 20 Marks)

1. What are mutants? Types of mutants.
2. Define Immobilization. What are the types of immobilization?
3. Write the differences between Exonucleases and Endonucleases.
4. What are vectors? Write the ideal properties of vectors.
5. Write few applications of hybridoma technology.
6. What are toxins? Explain the method of conversion of toxin to toxoid.
7. Write the preparation and uses of human fibrinogen.
8. Write about types of aerators in Fermentor.
9. What is protein engineering?
10. Differentiate between prokaryotic and Eukaryotic organisms.

PART - B

Note: Answer any two questions:

(2 x 10 = 20 Marks)

11. Write differences between HLA and MHC. Discuss the structure and function of MHC.
12. Explain the typical structure of Immunoglobulin with neat labeled diagram and types and functions of Antibodies.
13. What are plasma substitutes? Explain the manufacturing of plasma substitutes and standardization.

PART - C

Note: Answer any seven questions:

(7 x 5 = 35 Marks)

14. Write a brief notes on Protein Engineering.
15. Explain the working process of polymerase chain reaction.
16. Explain pBR322 and pUC vectors.
17. Discuss the general methods of preparation of vaccines.
18. Explain southern blotting technique.
19. Explain in detail direct and indirect methods of ELISA.
20. What are mutations? Explain the types of mutations.
21. Explain the preparation of dried human plasma and dried human serum.
22. Explain type I and type II hypersensitivity reactions.

FACULTY OF PHARMACY**B. Pharmacy VI– Semester (PCI) (Backlog) Examination, February / March 2022****Subject: Bio pharmaceutics and Pharmacokinetics****Time: 3 Hours****Max.Marks:75**

**Note: Answer all questions from Part - A, Any two questions from Part - B.
And any seven questions from Part - C**

PART – A (10 x 2 = 20 Marks)

1. Write Noyes Whitney equation. And explain the terms.
2. Describe the absorption of a drug on rectal administration.
3. Define apparent volume of distribution.
4. Write a note on excretion of drugs through skin.
5. Define absolute bioavailability and relative bioavailability.
6. Define C_{max} , t_{max} and AUC?
7. If equation of the curve is $C=15.e^{-0.23t}$ for a drug administered by IV route and following one compartment open model, then calculate its biological half – life.
8. Write Michaelis menten equation.
9. Describe hepatic clearance.
10. What are the factors for cause of non-linear kinetics?

PART – B (2x10 = 20 Marks)

11. A dose of 500mg of drug was given intravenously to a patient and following blood data was obtained. Assuming that the drug follows one compartment open model. Calculate all possible pharmacokinetic parameters.

Time (Hrs)	2	4	6	8	10	12	16	20
asma Concentration ($\mu\text{g/ml}$)	1.83	1.01	0.58	0.33	0.18	0.10	0.031	0.012

12. Describe factors influencing absorption of drugs.
13. Describe renal excretion of drugs.

PART – C (7 X 5 = 35Marks)

14. Discuss about pH-partition hypothesis.
15. Describe the absorption of drugs from extravascular routes.
16. Explain briefly about Kinetics of protein binding.
17. Explain biliary excretion of drugs.
18. Discuss about methods to enhance bioavailability of poorly soluble drugs.
19. Describe estimation of K_m and V_{max} in non-linear kinetics.
20. Derive kinetic parameters for IV bolus administration in Two compartment open model.
21. How do you determine absorption rate constant, K_a by Wagner nelson method?
22. A 650mg I.V. dose of a drug is administered to a 65kg subject, the plasma drug concentration was found to decline biexponentially. The equation that best describes.

The drug kinetics $C=67.e^{-14t} + 33.e^{-3t}$, C is in mg/it Calculate the different volumes of distribution V_c , V_p , D_d , V_{darea} , V_{dss} .

FACULTY OF PHARMACY
B. Pharmacy VI Semester (PCI) (BACKLOG) Examination,
February / March 2022

Subject: Herbal Drug Technology

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all questions.

(10 x 2 = 20 Marks)

- 1 Define herbal medicine and herbs.
- 2 Define bio pesticide bio insecticide.
- 3 Write the scope of Nutraceuticals.
- 4 Define herbal drug interaction with suitable examples.
- 5 Define herbal formulation with example.
- 6 Define Phytosomes and Microspheres.
- 7 Define Bio piracy and patent.
- 8 Write the constitution of ASU DTAB.
- 9 Write the scope and future prospectus of herbal drug industry.
- 10 Define schedule T and write objectives of schedule T.

PART - B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

- 11 Write an elaborate note on processing of herbal raw materials.
- 12 Explain in detail about the scope and type of Nutraceutical products available market.
- 13 Discuss WHO and ICH guidelines for the assessments of herbal drugs.

PART - C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

- 14 Explain the sources of herbs.
- 15 Write a brief note on organic farming.
- 16 Write a note on herb drug interactions with suitable examples.
- 17 Explain about the side effects and interactions of Hypericum and Kava-Kava.
- 18 Write a brief note on flavours in herbal preparations.
- 19 Write a note on Phytosomes.
- 20 Explain in detail about Patent and IPR.
- 21 Give a brief note on Schedule Z.
- 22 Write a brief note on plant based industries and institutions.

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FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Backlog) Examination, February 2022

Subject: Pharmacology - III

Time: 3 Hours

Max. Marks: 75

Note: Answer all questions from PART-A, and two questions from PART-B, and any seven questions from PART-C.

PART - A (10 x 2 = 20 Marks)

- 1) What is Circadian rhythm?
- 2) What is carcinogenicity give examples of drugs causing it?
- 3) What is the treatment for morphine poisoning?
- 4) What are the adverse effects of tetracyclins.
- 5) Define laxative. Give examples.
- 6) What are expectorants? Give examples.
- 7) Write about appetite suppressant drugs.
- 8) What are mucolytics. Give examples.
- 9) What are the adverse effects of penicillins.
- 10) Define Digestant. Give two examples.

PART - B (2 x 10 = 20 Marks)

- 11) Write about antibiotics used in cancer.
- 12) Write about anti tubercular drugs.
- 13) Classify Antiulcer agents? Write the pharmacology of H₂ antagonists.

PART - C (7 x 5 = 35 Marks)

- 14) What is biological clock? With some examples explain chronotherapy.
- 15) Explain the pharmacology of Co-trimoxazole.
- 16) Write a note on symptoms and treatment of arsenic poisoning.
- 17) Write the pharmacology of any one class of antibiotics.
- 18) Write a note on Urinary antiseptics.
- 19) Classify antiamoebic agents. Add a note on Metronidazole.
- 20) Classify Anti-tussives. Add a note on Anti-histaminics.
- 21) Write a note on Bronchodilators.
- 22) What is an antiemetic? Classify antiemetics.

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Backlog) Examination, February / March 2022

Subject: Medicinal Chemistry - III

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all questions:

(10 x 2 = 20 Marks)

1. Define & classify β -lactam antibiotics?
2. Write the structure of Sulbactam & Monobactam?
3. Give the structure and uses of Neomycin?
4. Write the structure of Pyrazinamide & Isoniazid?
5. Write the structure and uses of Dapsone?
6. Define Partition coefficient, Tafts steric parameter?
7. Write the mechanism of action of Tetracyclines?
8. Write the mechanism of action of Macrolides?
9. Define prodrugs?
10. Write the structure and uses of Clindamycin?

PART - B

Note: Answer any two questions:

(2 x 10 = 20 Marks)

11. Write the various classes of antitubercular drugs. Write the synthesis & mode of action of Para amino salicylic acid?
12. Write the life cycle of malaria parasite and Write the synthesis and mode of action of the Chloroquine?
13. Write the mode of action and SAR of Sulphonamides and Write the synthesis of Sulfacetamide?

PART - C

Note: Answer any seven questions:

(7 x 5 = 35 Marks)

14. Write the chemical degradation of Pencillins?
15. Explain the mode of action, SAR and uses of Cephalosporins?
16. Give the structure, synthesis, mode of action and uses of Chloramphenicol?
17. Write a note of Prodrugs?
18. Give the various classes of Antifungal agents & write the synthesis of Miconazole?
19. Write the synthesis, mode of action and uses Diethylcarbamazine citrate?
20. Give a note on liquid phase synthesis in combinatorial chemistry?
21. Write the structure, synthesis and uses of Tolnaftate?
22. Give the various classes of Anti-protozoal agents & write the synthesis of Metronidazole?

FACULTY OF PHARMACY

B. Pharmacy VI Semester (PCI) (Backlog) Examination, February / March 2022

Subject: Medicinal Chemistry - III

Time: 3 Hours

Max. Marks: 75

PART - A

Note: Answer all questions:

(10 x 2 = 20 Marks)

1. Define & classify β -lactam antibiotics?
2. Write the structure of Sulbactam & Monobactam?
3. Give the structure and uses of Neomycin?
4. Write the structure of Pyrazinamide & Isoniazid?
5. Write the structure and uses of Dapsone?
6. Define Partition coefficient, Tafts steric parameter?
7. Write the mechanism of action of Tetracyclines?
8. Write the mechanism of action of Macrolides?
9. Define prodrugs?
10. Write the structure and uses of Clindamycin?

PART - B

Note: Answer any two questions:

(2 x 10 = 20 Marks)

11. Write the various classes of antitubercular drugs. Write the synthesis & mode of action of Para amino salicylic acid?
12. Write the life cycle of malaria parasite and Write the synthesis and mode of action of the Chloroquine?
13. Write the mode of action and SAR of Sulphonamides and Write the synthesis of Sulfacetamide?

PART - C

Note: Answer any seven questions:

(7 x 5 = 35 Marks)

14. Write the chemical degradation of Pencillins?
15. Explain the mode of action, SAR and uses of Cephalosporins?
16. Give the structure, synthesis, mode of action and uses of Chloramphenicol?
17. Write a note of Prodrugs?
18. Give the various classes of Antifungal agents & write the synthesis of Miconazole?
19. Write the synthesis, mode of action and uses Diethylcarbamazine citrate?
20. Give a note on liquid phase synthesis in combinatorial chemistry?
21. Write the structure, synthesis and uses of Tolnaftate?
22. Give the various classes of Anti-protozoal agents & write the synthesis of Metronidazole?

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, September 2021

Subject: Medicinal Chemistry-III

Time: 2 Hours

Max. Marks: 75

Note: Answer any seven questions from Part –A, Any one questions from Part-B and Any five questions from Part-C

PART – A (7X3 = 21 Marks)

1. Define & classify β - lactam antibiotics?
2. Write the structure of Benzly pencillin & Chlortetracycline?
3. Write the structure and uses of Strptomycin?
4. Write the structure of Isoniazid & Para amino salicylic acid?
5. Write the structure and uses of Dapsone?
6. Define Partition coefficient, Hammett's electronic parameter?
7. Write the mechanism of action of Tetracycline?
8. Write the mechanism of action of Macrolides?
9. Define prodrugs?
10. Write the β - Lactamase inhibitors?

PART- B (1 X 14 = 14 Marks)

11. Enumerate the various classes of antitubercular drugs. Write the synthesis & mode of action of Isoniazid?
12. Define Beta lactam antibiotics and explain the classification, SAR and mode of action of cephalosporins?
13. Write the life cycle of malaria parasite and Write the synthesis and mode of action of the Chloroquine?

PART - C (5 X 8 = 40 Marks)

14. Write the chemical degradation of pencillin?
15. Write the SAR and uses of Tetracycline?
16. Write the structure, synthesis, mode of action and uses of Chloramphenicol?
17. Write a note on Prodrugs?
18. Write the structure, synthesis, mode of action and uses of Nitrofurantion?
19. Write the mode of action and SAR of Sulphonamides?
20. Write a short note on combinatorial chemistry?
21. Write the structure, synthesis, mode of action and uses of Miconazole?
22. Write the structure, synthesis, mode of action and uses of Mebendazole?

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FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, September 2021

Subject: Pharmacology - III

Time: 2 Hours

Max. Marks: 75

Note: Answer any seven questions Part – A, any one question from Part – B and any five questions from Part – C.

PART – A (7 x 3 = 21 Marks)

- 1 What are antiemetics?
- 2 What are nasal decongestants?
- 3 Differentiate between purgatives and laxatives.
- 4 Define the following terms
 - a. Circadian rhythm
 - b. circannual rhythm
- 5 What are fluoroquinolones? Give examples.
- 6 Enumerate various antidotes available.
- 7 Define Chronotherapy and write its applications.
- 8 Write a note on appetite suppressants.
- 9 What are the cholinesterase reactivators? Give examples.
- 10 How do carminatives act?

PART- B (1 x 14 = 14 Marks)

- 11 Classify the agents used in treatment of peptic ulcer disease. Write about the pharmacological actions and therapeutic uses of Ranitidine and Omeprazole.
- 12 Write the MOA, adverse effects and therapeutic uses of Reverse transcriptase inhibitors and cisplatin.
- 13 Explain the cell cycle. What are fluoroquinolones? Explain their MOA, therapeutic uses and adverse effects.

PART- C (5 x 8 = 40 Marks)

- 14 Explain the MOA and adverse effects of aminoglycosides and penicillins.
- 15 Write short notes on the pharmacology of H₂ receptor blockers.
- 16 Discuss the symptoms and treatment of heavy metal poisoning.
- 17 Write a note on antimalarial drugs.
- 18 What are protein based drugs? Write short notes on them.
- 19 Write about urinary tract infections.
- 20 Classify antifungal drugs. Write the MOA and adverse effects of amphotericin.
- 21 Discuss the symptoms and treatment of barbiturate poisoning.
- 22 What are immunosuppressants? Classify them.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (Main & Backlog) Examination, September 2021

Subject: Herbal Drug Technology

Time: 2 Hours

Max. Marks: 75

Note: Answer any seven questions from Part-A, any one question from Part-B and any five questions from Part-C.

Part – A (7 x 3 = 21 Marks)

- 1 Define “IPR” and “Bioprospecting”
- 2 Write about curcumin
- 3 Explain soxhlet extraction
- 4 Differentiate conventional and organic farming
- 5 Write about any two microbial pesticides
- 6 Write composition and functions of ASUDCC
- 7 What are churnas & bhasmas
- 8 Write about guar gum and saffron
- 9 Write the underlying principle of homeopathy
- 10 What are the methods for authentication of a herb

Part – B (1 x 14 = 14 Marks)

- 11 Write a detailed account of the guidelines for stability testing of herbal drugs.
- 12 Write a note on: (a) Vitamins as antioxidants (b) Schedule Z.
- 13 Write a short note on (a) Herbal drug industry (b) Traditional Knowledge

Part – C (5 x 8 = 40 Marks)

- 14 Write a note on the role of nutraceuticals in the prevention and management of cardiovascular diseases.
- 15 Write about pharmacokinetic herb drug interactions with examples.
- 16 Present an overview of good agricultural practices.
- 17 Write an account of plant based research institutes in India.
- 18 What is bio piracy? Discuss any three bio piracy cases in India.
- 19 Classify herbal excipients. Write in detail about naturally derived thickening agents.
20. Write the method of preparation and standardization of churnas.
21. Discuss various methods used for processing of herbal materials.
22. Write a note on omega fatty acids and resveratrol.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, September 2021

Subject: Biopharmaceutics and Pharmacokinetics

Time: 2Hours

Max. Marks: 75

Note: Answer any Seven Questions from Part –A, Any One Questions from Part-B.and Any Five Questions from Part-C

PART – A (7X3 = 21 Marks)

- 1) Define biopharmaceutics
- 2) Mention factors affecting Absorption
- 3) Differentiate Passive transport and Active transports.
- 4) Define Absolute bioavailability and relative bioavailability.
- 5) List the factors affecting elimination of drugs.
- 6) Explain Flip-flop method in Extra vascular administration.
- 7) What is apparent volume of drug distribution
- 8) Write the equation for calculating steady state drug concentration for one compartment open model.
- 9) What is protein binding. How it affects bio availability
- 10) Expand the terms: i. AUC, ii. Vd iii. $t_{1/2}$ iv. K_a v. K_{el} vi. CL_R

Part - B (1 x 14 = 14 Marks)

- 11) Write about in-vitro drug dissolution models.
- 12) How do you estimate the pharmacokinetics parameters (K_{max} and V_{max}) by using Michaelis – Menton equation.
- 13) Discuss about factors influencing absorption of drug in GIT

Part - C (5 x 8 = 40 Marks)

- 14) Write a note on Carrier mediated transport.
- 15) Describe about the physiological barriers to the distribution of drugs. Any three.
- 16) Explain the biliary excretion of drugs.
- 17) Explain the various methods for assessment of bioavailability.
18. Discuss in-Vitro-in-Vivo correlation
19. Explain kinetics of protein binding
20. Write in detail about compartment models.
- 21) Write a note on non-linear pharmacokinetics.
- 22) Explain methods of adjustment of dose and dosage regimen in patients with hepatic failure

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main & Backlog) Examination, September 2021

Subject: Pharmaceutical Biotechnology

Time: 2 Hours

Max. Marks: 75

Note: Answer any Seven Questions from Part –A, Any One Questions from Part-B. and Any Five Questions from Part-C

PART – A (7X3 = 21 Marks)

1. Define the following:
i) Biotechnology ii) Enzyme immobilization
2. Write the components of Biosensors
3. Write significance of enzyme acting on DNA
i) Restriction end nucleases ii) S1 nuclease
4. Enumerate types of cloning vectors. Add a note on COSMID as vector
5. What is active immunity?
6. Write stability tests defined for official vaccines
7. Give applications involved in Southern blotting technique
8. How will you transfer gene by conjugation method
9. How to control foam during fermentation?
10. Mention six enzymes

PART- B (1 X 14 = 14 Marks)

11. Give the principle of rDNA technology along with significance of enzymes. Enlist and explain various methods of screening the recombinants.
12. Define vaccine. Write the method of preparation and quality control of bacterial vaccine
13. Discuss production of Penicillin by fermentation process.

PART - C (5 X 8 = 40 Marks)

14. Enlist methods of immobilization of enzymes. Add a note on applications of enzyme Immobilization
15. Explain the applications of Biosensors
16. Write a brief account on production of insulin by rDNA technology
17. Differentiate between 'type II Hypersensitivity' the 'type III Hypersensitivity'.
18. Give role of HAT medium in monoclonal antibody production
19. Write short notes on ELISA technique
20. Differentiate between prokaryote and Eukaryote
21. Describe components and working of fermentor
22. Write short note on vitamin B12 Production by fermentation

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FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Suppl.) Examination, March 2021

Subject : Medicinal Chemistry-III

Time: 2 Hours

Max. Marks: 75

**Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B.
and Any Five Questions from Part-C**

PART – A (7 X 3 = 21 Marks)

- 1) Define & classify antibiotics?
- 2) Write the structure of Sulbactam & Monobactam?
- 3) Write the structure and uses of Streptomycin?
- 4) Write the structure of Chloroquine & Ethambutol?
- 5) Write the structure and uses of Dapsone?
- 6) Define Partition coefficient, Taft's steric parameter?
- 7) Write the mechanism of action of Aminoglycosides?
- 8) Write the mechanism of action of Macrolides?
- 9) Define prodrugs?
- 10) Write the mode of action of anti-fungal agents?

Part - B (1 x 14 = 14 Marks)

- 11) Write the various classes of antitubercular drugs. Write the synthesis & mode of action of Isoniazid?
- 12) Define Beta lactam antibiotics and explain the classification, SAR and mode of action of Penicillins?
- 13) Write the mode of action and SAR of Sulphonamides and Write the synthesis of Sulfamethoxazole?

Part - C (5x8 = 40 Marks)

- 14) Write the chemical degradation of Cephalosporins?
- 15) Write the SAR and uses of Tetracycline?
- 16) Write the structure, synthesis, mode of action and uses of Chloramphenicol?
- 17) Write a note on Prodrugs?
- 18) Write the structure, synthesis, mode of action and uses of Ciprofloxacin?
- 19) Write the structure, synthesis, mode of action and uses of Trimethoprim?
- 20) Write a short note on combinatorial chemistry?
- 21) Write the structure, synthesis, mode of action and uses of Tolnaftate?
- 22) Write the structure, synthesis, mode of action and uses of Mebendazole?

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FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Suppl.) Examination, March 2021

Subject : Quality Assurance

Time: 2 Hours

Max. Marks: 75

**Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B.
and Any Five Questions from Part-C**

PART – A (7 X 3 = 21 Marks)

- 1 Define ISO 14000
- 2 Define Quality by design (QbD)
- 3 Define Quality Assurance.
- 4 Define GMP.
- 5 Explain out of trend (OOT)?
- 6 What is Warehousing? Explain.
- 7 Explain on out of specification.
- 8 What is Sources of impurities? Explain.
- 9 What is calibration. Why it should be bone for equipment
- 10 What is SOP.? Explain.

Part - B (1x 14 = 14 Marks)

- 11 Write briefly about Quality control test for secondary packing materials.
- 12 Define ICH. Explain about ICH Guidelines.
- 13 Write briefly about importance, scope of validation and types of validation.

Part - C (5x 8 = 40 Marks)

- 14 Describe SOP, Quality audit and Quality Review.
- 15 Write a short note on Total Quality Management (TQM)
- 16 List out what are the different analytical instrumentation used in the estimation of impurities.
- 17 Explain about validation master plan.
- 18 Explain about Personnel responsibilities, training, and hygiene
- 19 Write a short note on ISO 9000 series?
- 20 Explain about Equipment selection, purchase specifications and maintenance
- 21 Explain ISO certification procedure and its advantages?
- 22 Write briefly about Quality control test for containers.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Suppl.) Examination, March 2021

Subject : Pharmaceutical Biotechnology

Time: 2 Hours

Max. Marks: 75

**Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B.
and Any Five Questions from Part-C**

PART – A (7 X 3 = 21 Marks)

- 1 What is biosensor? Write the main components used in biosensor.
- 2 What is genetic engineering?
- 3 Explain restriction endonucleases.
- 4 What are vectors? Write the ideal properties of vectors.
- 5 Write few applications of hybridoma technology.
- 6 What are toxins? Explain the method of conversion of toxin to toxoid.
- 7 Write the preparation and uses of human fibrinogen.
- 8 Write about types of aerators in Fermentor.
- 9 Write a brief note on plasmids.
- 10 Differentiate between prokaryotic and Eukaryotic organisms.

Part - B (1 x 14 = 14 Marks)

- 11 Discuss the structure and function of Major Histocompatibility Complex.
- 12 Explain the typical structure of Immunoglobulin and types of Antibodies.
- 13 What are plasma substitutes? Explain the manufacturing of plasma substitutes and standardization.

Part - C (5x 8= 40 Marks)

- 14 Write a brief notes on Protein Engineering
- 15 Explain the steps involved in PCR.
- 16 Explain insertion and replacement vectors (Bacteriophage vector)
- 17 Discuss the general methods of preparation of vaccines.
- 18 Explain Southern blotting technique.
- 19 Explain generalized transduction and specialized transduction.
- 20 What are mutations? Explain the types of mutations.
- 21 Draw a neat labeled diagram of a typical fermentor.
- 22 Explain the aeration and agitation process in fermentation.

FACULTY OF PHARMACY**B. Pharmacy VI-Semester (PCI) (Suppl.) Examination, March 2021****Subject : Biopharmaceutics & Pharmacokinetics****Time : 2 Hours****Max. Marks: 75**

Note: Answer any seven questions Part – A, any one questions from Part – B and any five question from Part – C.

PART – A (7x3=21 Marks)

- 1 Define Noyes and Whitney equation and its application.
- 2 What is Lipinskis rule of five?
- 3 Differentiate between plasma protein-drug binding and tissue drug binding.
- 4 Define Microconstants and Hybrid constants and write relationship between them.
- 5 What is Flip-Flop Phenomenon and how it is useful in method of residual?
- 6 What are the different methods used to calculate the AUC?
- 7 Define orange book and objectives of bioavailability studies.
- 8 Difference between Absolute bioavailability and Relative bioavailability.
- 9 Define Creatinine and how to calculate the Creatinine Clearance
- 10 If Vd of thiopental is 2000ml. Calculate the amount of drug in the body when plasma concentration is 2µg/ml.

PART- B (1x14=14 Marks)

- 11 Define absorption. Write in detail about mechanism of drug absorption with diagram.
- 12 Explain in detail about Bioequivalence study protocols.
- 13 Derive Michaelis-Menten equation and how do you estimate K_m and V_{max} .

PART- C (5x8=40 Marks)

- 14 Write in detail about pH partition hypothesis and its limitation.
- 15 Write about Gastric emptying rate and Volume of distribution.
- 16 Significance and kinetics of protein drug binding.
- 17 What are the factor causing Non-Linearity?
- 18 How do you calculate absorption rate constant, K_a by using Wagner Nelson method?
- 19 Explain the pharmacokinetic parameters of a drug which follows one compartment open model when given by intravenous bolus with relevant mathematical equations.
- 20 What are the different methods for Assessment of Bioavailability?
- 21 Explain various cross over designs in Bioequivalence studies.
- 22 A 60 kg male received 2mg/kg of a drug orally. The following plasma concentration vs time data is obtained. Assume the drug follows one compartment open model and it is completely absorbed. Calculate all possible pharmacokinetic parameters.

Time(hr)	1	2	3	4	5	6	8	10	12	14
Plasma Conc. (µg/ml)	3.2	7.3	9.1	9.7	9.7	9.2	7.1	5.3	4.0	3.0

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Suppl.) Examination, March 2021

Subject : Herbal Drug Technology

Time: 2 Hours

Max. Marks: 75

**Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B.
and Any Five Questions from Part-C**

PART – A (7 X 3 = 21 Marks)

- 1 What is Tridosha
- 2 What are Biopesticides
- 3 Define the term nutraceuticals
- 4 Write the health benefits of Amla.
- 5 What are advantages of Herbal Excipients.
- 6 Define the term Cosmetics.
- 7 Define the term patent and farmers right
- 8 What do you mean by evaluation of drugs?
- 9 List plant based government research institutes in India.
- 10 Write a note on Biopiracy.

Part - B (1x 14 = 14 Marks)

- 11 Briefly explain good agricultural practices in cultivation of medicinal plants.
- 12 What is traditional knowledge. Explain patenting aspects of Traditional knowledge and natural products.
- 13 Briefly explain the objectives and components of Schedule-T.

Part - C (5x 8 = 40 Marks)

- 14 List the Ayurvedic formulations and write the preparation of Bhasma.
- 15 Explain the principles of Siddha system of medicine.
- 16 Discuss the future prospects of Herbal drug industry.
- 17 Write a detailed account of case study of Neem and Curcuma.
- 18 Write the methods of stability testing of herbal drugs.
- 19 Write note on herbal binders and diluents.
- 20 Write the possible side effects and interactions of garlic and pepper.
- 21 Write the role of Honey and Alfa alfa as health food.
- 22 Write about pest management in medicinal plants.

FACULTY OF PHARMACY
B. Pharmacy VI-Semester (PCI) (Main) Examination, December 2020
Subject: Quality Assurance

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any Seven questions.

(7 x3=21 Marks)

1. Define TQM
2. Give difference between Quality Assurance & Quality Control.
3. State the purpose of ICH.
4. Name Quality Control tests for glass containers.
5. Name different parameters of Analytical method validation.
6. Name any four responsibilities of Quality control people.
7. Mention classification of Recall.
8. What is qualification and validation .
9. Enlist the scope for validation.
10. Give the principles of NABL accreditation.

PART – B

Note: Answer One question.

(1 x14=14 Marks)

11. a) Define Quality by Design.
b) Write in detail note on QbD.
12. Write a short note on plant layout with example.
13. Explain Good Warehousing practices.

PART - C

Note: Answer any Five questions.

(5x8=40 Marks)

14. Write in detail Equipment Validation.
15. Draw cause and effect diagram for tablet manufacturing process.
16. Write in detail parameters to be checked in Quality Audit.
17. Write short note on ISO 9000.
18. Explain in short Good Laboratory practices.
19. Explain steps involved in complain handling.
20. Explain the term “validation Master Plan”.
21. What is forced degradation stability study? Explain in short.
22. Write a note on Quality Management System.

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FACULTY OF PHARMACY

B.Pharmacy VI-Semester (PCI) (Main) Examination, November 2020

Subject : Pharmaceutical Biotechnology

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any Seven questions.

(7 x3=21 Marks)

1. Enlist applications of biotechnology to pharmaceutical industry.
2. Describe the terms biosensor and bioreactor.
3. Write significance of enzyme acting on DNA.
i) Polymerase ii) Ligase
4. Describe the importance linkers and adapters.
5. What is toxoid. Give examples
6. What are plasma substitutes?
7. Define the following :
i) Immunoblotting ii) Immuno suppression.
8. How will you transfer gene by transduction method?
9. Define fermentation.
10. Write six enzymes.

PART – B

Note: Answer One question.

(1 x14=14 Marks)

11. Explain benefits of recombinant DNA products. Write a detailed account on human insulin production by rDNA technology
12. What is Hybridoma technology? Explain the steps involved in the production of monoclonal antibodies and applications.
13. Describe Microbial biotransformation and its pharmaceutical applications.

PART - C

Note: Answer any Five questions.

(5x8=40 Marks)

14. Explain the concept of enzyme immobilization. Comment on its applicability with suitable examples.
15. Write short notes on production of amylase.
16. Write short notes on interferon production by rDNA technology.

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17. Write a short note on PCR.
18. Differentiate between humoral mediated immunity and cell mediated immunity.
19. Give an account of collection, processing & storage of whole human blood.
20. What is southern blotting? Give details of southern blotting and application.
21. Enlist various criteria to be considered in designing of a fermentor, Draw a neat schematic labelled diagram of fermentor.
22. Write short notes on antibiotic production by fermentation with suitable example.

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FACULTY OF PHARMACY

B.Pharmacy VI-Semester (PCI) (Main) Examination, November 2020

Subject : Medicinal Chemistry - III

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer Seven Questions.

(7 X 3 = 21 Marks)

1. Write the general synthesis of sulfonamides.
2. What are folate reductase inhibitors?
3. Give the mechanism of action of Trimethoprim.
4. Mention any six quinolone drugs.
5. What are Monobactams?
6. Classify antitubercular agents with examples.
7. Mention any six sulfonamide drugs
8. Mention any six antifungal agents
9. Mention any six antiviral drugs.
10. Mention any six antiprotozoal agents?

PART – B

Note: Answer One Question.

(1X14 = 14 Marks)

11. a) Write a note on B-lactam antibiotics
b) Write a note on tetracyclines.
12. a) Write the classification of antifungal agents
b) Give the synthesis, mechanism of action and uses of any one antifungal drug.
13. a) Write a note on Tetracyclines.
b) Write a note on Anti-protozoal agents.

PART – C

Note: Answer Five Question.

(5X8 = 40 Marks)

14. Discuss the SAR of semi-synthetic Penicillins.
15. What are prodrugs? Write the classification of Prodrugs based on functional groups.
16. Write the synthesis and mechanism of any two sulfa drugs.
17. Give a note on Artemisinin derivatives.

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18. Write the synthesis, mode of action and therapeutic uses of Isoniazid and Para amino salicylic acid
19. Write a note on Anti-HIV drugs.
20. Write the synthesis and mechanism of Diethylcarbamazine citrate and Metronidazole.
21. Write about Quinoline antibiotics.
22. What are β -lactam antibiotics? Write their mechanism of action.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main) Examination, November 2020

Subject : Biopharmaceutics and Pharmacokinetics

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer Seven Questions.

(7 X 3 = 21 Marks)

- 1) Mention the factors effecting elimination of drugs
- 2) List the factors influencing absorption of drugs through GIT
- 3) Differentiate tissue binding and protein binding.
- 4) Write the markers used in renal clearance.
- 5) Define Bioavailability.
- 6) Expand the terms i. $A \cup C$ ii. $t_{\frac{1}{2}}$ iii. V_d iv. IV v. K_a vi. E_E
- 7) What is $t_{\frac{1}{2}}$ what is its importance
- 8) Write the equation for calculating loading dose.
- 9) What is apparent volume of distribution and its importance
- 10) What are the factors for cause of non-linear kinetics.

PART – B

Note: Answer One Question.

(1X14 = 14 Marks)

- 11) Write about in - vitro drug dissolution models
- 12) Derive mathematical equations used to calculate Pharmacokinetic parameters following IV bolus administration blood data, assuming that the drug follows two compartment open model.
- 13) Discuss about protein binding and various factors affecting drug-protein binding.

PART – C

Note: Answer Five Question.

(5X8 = 40 Marks)

- 14) Discuss the mechanism of Active diffusion in absorption of drugs.
- 15) How the organ size and perfusion rate influence the drug distribution?
- 16) Explain briefly about Kinetics of protein binding.

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- 17) Explain factors affecting the renal excretion of drugs.
- 18) Discuss about *in vitro-in vivo* correlations
- 19) A drug has a volume of distribution of 12Lts and elimination rate constant of 0.18hr^{-1} . A steady state concentration of $12\mu\text{g/ml}$ is desired. Assuming one compartment kinetics, calculate time required to reach 99% of C_{ss} and infusion rate to achieve desired steady state.
- 20) Write the significance of different volumes of distribution in two compartment model.
- 21) Write a note on non-linear pharmacokinetics and Michaelis-Menten equation.
- 22) How do you determine absorption rate constant, K_a by Wagner Nelson method.

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main) Examination, November 2020

Subject : Herbal Drug Technology

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer Seven Questions.

(7 X 3 = 21 Marks)

- 1) What is Organic farming.
- 2) Define the term Herbal medicine as per WHO.
- 3) Mention any six names of Aycervedic preparations (formulations)
- 4) What is significance of Herbal excipients
- 5) Write the health benefits of herbal medicines.
- 6) Define the term Nutraceuticals
- 7) List the parameters for evaluation of herbal tablets.
- 8) Define the term patent and IPR.
- 9) What is schedule T
- 10)What are antioxidants and give examples.

PART – B

Note: Answer One Question.

(1X14 = 14 Marks)

- 11)Briefly explain the objectives and components of Schedule-T
- 12)List the Ayurvedic formulations and write the preparation of any three.
- 13)Explain the WHO guidelines for the assessment of herbal drugs.

PART – C

Note: Answer Five Question.

(5X8 = 40 Marks)

- 14)How will you perform selection and identification of herbal materials?
- 15)Briefly explain the principles of Homeopathic system of Medicine.
- 16)Write a note on Functional foods and Dietary supplements.
- 17)Give informative note on Health benefits of nutraceuticals in management of diabetes.
- 18)What are excipients and give its classification with examples.
- 19)What are phytosomes? Give its method of preparation.
- 20)Give a detailed account of case study of neem and curcumin.
- 21)Explain the objectives and functions of ASU and DCC.
- 22)Give an informative note on future prospects of herbal drug industry.

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FACULTY OF PHARMACY

B. Pharmacy VI-Semester (PCI) (Main) Examination, November 2020

Subject : Pharmacology - III

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer Seven Questions.

(7 X 3 = 21 Marks)

- 1) What is asthma. Give four examples of drugs used in Asthma
- 2) What is ulcer. Give four examples of drugs used in ulcer.
- 3) What is the treatment for organophosphorus poisoning?
- 4) What is teratogenicity and give examples of drugs causing teratogenic effects.
- 5) Define Chronopharmacology.
- 6) What are the uses of sulfa drugs mention any four sulfa drugs.
- 7) What is amoebiasis Give any four examples of drugs.
- 8) What is BCG? What for it is used
- 9) Give two examples for Bronchodilators and explain how they work?
- 10) Define Expectorant. Give two examples.

PART – B

Note: Answer One Question.

(1X14 = 14 Marks)

- 11) Classify anticancer agents. Add a note on antimetabolites.
- 12) Write the symptoms and management of Heavy metal poisoning.
- 13) Explain the pharmacological role of H₁ and H₂ antihistaminics.

PART – C

Note: Answer Five Question.

(5X8 = 40 Marks)

- 14) Write a note on sulfanamides.
- 15) Explain about Proton pump Inhibitors.
- 16) Write a note on Immunosuppressant's.
- 17) Explain the chemotherapy of Anti-TB drug.
- 18) Write a note on Penicillins.
- 19) Write a note on ant tubercular agents.
- 20) Write a note on antimalarial drugs.
- 21) Write the pharmacology of respirations stimulants
- 22) What are the different types of rhythms. Explain about circadian rhythm with examples.

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