

FACULTY OF PHARMACY
B. Pharmacy VII-Semester (PCI) (Main) Examination, March 2021

Subject: Instrumental Methods of Analysis

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7 X 3 = 21 Marks)

1. Define chromophore and Auxochrome and give examples.
2. Explain the phenomenon of Fluorescence and Phosphorescence.
3. What are the different types of fundamental modes of vibration in molecules after absorption of IR radiations?
4. Write the principles of partition and adsorption chromatography.
5. Write the different fuel gases and oxidants used in flame photometry technique.
6. Write the applications of gel permeation chromatography.
7. Write the ion exchange mechanism of ion exchange chromatography.
8. Define retardation factor.
9. What is Bathochromic and Hypsochromic shift?
10. Write the principle involved in affinity chromatography.

PART – B

Note: Answer any one questions.

(1 X 14 = 14 Marks)

11. Describe different components of UV spectrophotometer with a labeled diagram.
12. Explain the principles and experimental detail of thin layer chromatography for Quantitative analysis.
13. Explain the principles and instrumentation of HPLC technique.

PART – C

Note: Answer any five questions.

(5 X 8 = 40 Marks)

14. Discuss the factors influencing intensity of fluorescence and applications of Fluorimetry technique.
15. Explain about gel electrophoresis.
16. Explain different sample handling techniques used in IR spectroscopy.
17. Write the theory and principle involved in flame photometry technique.
18. Write short notes on nepheloturbidometry.
19. Describe the different types of detectors used in Gas Chromatography.
20. Explain the different techniques used in paper chromatography.
21. Write the principles and applications of Atomic absorption spectroscopy.
22. Write the different factors affecting electrophoretic mobility of ions in electrophoresis separations.

FACULTY OF PHARMACY**B. Pharmacy VII-Semester (CBCS) (Backlog) Examination, March 2021****Subject: Medicinal Chemistry - II****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ = 70 Marks)**

1. (a) Classify local anesthetics? Write the synthesis of (i) Lidocaine (ii) Bupivacaine.
(b) Write a brief note on Narcotic analgesics and the synthesis of Nalaxone.
2. (a) Classify antipyretics and anti-inflammatory agents. Write the SAR of morphine.
(b) Write the synthesis of (i) Piroxicam (ii) Diclofinace sodium.
3. (a) Classify antineoplastic agents? Write the chemistry of alkylating agents.
(b) Write the synthesis of (i) Chlorambucil (ii) Methotrexate
4. (a) Classify Antibiotic? Write the SAR of Penicillin in detail.
(b) Write a brief note on chemistry of Tetracycline.
(c) Write the synthesis of (i) Cephalexin (ii) Chloronphenicol.
5. (a) Classify Anti-tubercular drugs? Write the SAR of Pyrizinamide.
(b) Write the classification of Anthelmintic agents and write the synthesis of
a) Albendazole (b) Niclosamide.
6. (a) What are chemotherapeutic agents and write the SAR of antifungal agents.
(b) Write the synthesis of (a) Chloroquine (b) Metronidazole (c) Piperazine.
7. (a) Write the SAR and synthesis of (a) Imipramine (b) Amitriptyline.
(b) Classify sedatives & Hypnotics? Write the synthesis of (a) Phenobarbitone
(b) Glutathione.
8. (a) Write the SAR and Synthesis of (i) Diazepam (ii) Midazolam.
(b) Classify Antipsychotics? Write the synthesis of (a) Chlorpromazine
(b) Thiothixene.
9. (a) Write about preparation and uses of fat soluble vitamins.
(b) Write a brief account on Essential amino acids.
10. Write in detail about Preparations, storage & uses of water soluble vitamins.

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FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject : Pharmaceutical Analysis – II (Instrumental Methods of Analysis)

Time : 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

- 1 (a) Write about different properties of electromagnetic radiation.
(b) Write the theory and principles of UV spectroscopy.
(c) Explain the concept of chromophore and auxochrome.
- 2 State and explain Beer's law and describe different components of UV spectro-photometer.
- 3 (a) Explain the theory of IR spectroscopy and molecular vibrations with reference to linear and non-linear molecules.
(b) Explain different sample handling techniques used in IR spectroscopy.
- 4 (a) Explain different IR regions for absorption of various functional groups.
(b) About Intensity and position of IR bands.
(c) Write about different types of detectors used IR spectrophotometers.
- 5 Explain the following:
(a) Shielding and de shielding
(b) Mass analyzers
(c) Properties of fluorescence
- 6 (a) Write the theory and principles of Mass spectroscopy technique.
(b) Write the description and working of different components of spectrofluorometer and applications.
- 7 (a) Write short notes on nepheloemetry and turbidometry.
(b) Write the advantages and applications of conductometric titrations.
- 8 (a) Give the principles of DSC and DTA techniques.
Explain the following:
(b) Nernst equation and calculation of cell potential.
(c) Equivalent, molar conductance and specific conductance.
- 9 (a) Write the theory and principles of electrophoresis technique.
(b) Write about different types of detectors used in gas chromatography.
- 10 (a) Write the principles of paper and thin layer chromatography.
(b) Give the description and working of HPLC with help of neat labelled diagram.

FACULTY OF PHARMACY**B. Pharmacy V-Semester (PCI) (Main & Backlog) Examination, March 2021****Subject : Medicinal Chemistry – II****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 Give the structures of omeprazole and lansoprazole.
- 2 Write the mechanism of action of anticancer plant products.
- 3 Outline the synthesis of nitroglycerin.
- 4 Discuss the mechanism of action of ACE inhibitors.
- 5 Outline the synthesis of warfarin.
- 6 Outline the synthesis of disopyramide phosphate.
- 7 What are oral contraceptives? Give examples.
- 8 Write the structures of testosterone and oestradiol.
- 9 Discuss the mechanism of action of biguanides.
- 10 Write about structure of insulin.

PART – B (1x14=14 Marks)

- 11 (a) What are H₂-antagonists? Outline the synthesis of cimetidine.
(b) Classify anti-neoplastic agents with two structures from each class.
- 12 (a) Explain the mechanism of action of anti-arrhythmic drugs with examples.
(b) Outline the synthesis of chlorothiazide and furosemide.
- 13 (a) Classify oral hypoglycemic drugs with one structure from each class.
(b) Discuss SAR of local anesthetics.

PART – C (5x8=40 Marks)

- 14 Outline the synthesis of triprolidine hydrochloride and promethazine hydrochloride.
- 15 Classify calcium channel blockers with one structure from each class.
- 16 Classify anti-hyperlipidemics with one structure from each class.
- 17 Give an account on agents used in treating congestive heart failures.
- 18 Write in detail about corticosteroids with structures.
- 19 Write a note on thyroid and anti-thyroid drugs.
- 20 Discuss mechanism of action of sulfonylureas and thiazolidinediones with examples.
- 21 Classify local anesthetics with structures.
- 22 Outline the synthesis to tolbutamide and procaine.

FACULTY OF PHARMACY
B.Pharmacy 3/4 I Semester (Non-CBCS) (Backlog) Examination, March 2021

Subject: Medicinal Chemistry-I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

- 1 a) What do you mean by soft drug approach in drug design? How is it achieved?
b) Explain with examples the factors affecting the drug metabolism.
- 2 a) Write about bioisosterism and steric factors of drugs.
b) Discuss with suitable examples the influence of protein binding on biological activity.
- 3 a) Classify ganglionic blocking agents with examples. Write the MoA and S.A.R.
b) Explain the S.A.R of β -Adrenergic blocking agents.
- 4 a) Explain the S.A.R of cholinergic drugs.
b) Write the synthesis of 1) Atenolol 2) Dicyclomine Hcl
- 5 a) Write a note on vasodilators with suitable examples.
b) Give the structure and synthesis of following.
1) Captopril 2) Clofibrate 3) Verapamil.
- 6 Give an account of.
1) Cardiotonic drugs 2) Anti-platelet drugs.
- 7 a) Define diuretics, classification with examples.
b) Write the MoA and uses of carbonic anhydrase inhibitors, give the synthesis of acetazolamide.
- 8 a) Discuss in detail S.A.R of tolbutamide.
b) Give the structure, synthesis and MoA of following.
1) Amiloride 2) Propyl thiouracil 3) Azathioprine
- 9 Classify H₂-receptors antagonists with examples. Write the mode of action and S.A.R. outline the synthesis uses of Ranitidine.
- 10 Outline the synthesis and uses of following.
1) Omeprazole 2) Cetrizine 3) Diphenhydramine. Write a note on anticoagulants.

FACULTY OF PHARMACY
B. Pharmacy VII-Semester (PCI) (Main) Examination, March 2021

Subject: Industrial Pharmacy - II

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7 X 3 = 21 Marks)

1. What is platform technology?
2. Define: (a) Pilot Plant (b) Scale-up.
3. 'Technology transfer means physical transfer of goods'. True or false, explain.
4. Write the roles of regulatory affairs department.
5. Explain the term "Technology transfer".
6. Differentiate between IND and NDA.
7. Write the applications of Quality by Design.
8. What is OOS? How does OOS apply only to finished products?
9. Enlist functions of regulatory authorities.
10. Write the vision and mission of CDSCO.

PART – B

Note: Answer any one question.

(1 X 14 = 14 Marks)

11. Explain the process of Change control with the help of flow-chart.
12. Discuss the NDA approval process in detail, illustrate with the help of flow diagram.
13. Explain the features of finished product technology transfer as per WHO guidelines.

PART – C

Note: Answer any five questions.

(5 X 8 = 40 Marks)

14. Discuss the stages of pharmaceutical product life-cycle.
15. Explain the principles of Good Laboratory Practice (GLP).
16. Describe in detail the barriers to technology transfer.
17. What is Investigator's Brochure (IB)? Comment on the content of IB.
18. Discuss the objectives of pilot plant.
19. Explain SUPAC guidelines.
20. Write about ISO 9000 series.
21. Describe the phases of clinical trials.
22. Enlist the key elements of TQM and explain any one of them.

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FACULTY OF PHARMACY**B. Pharmacy VII-Semester (CBCS) (Backlog) Examination, March 2021****Subject: Pharmaceutical Analysis – II (Instrumental methods of Analysis)****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ = 70 Marks)**

1. (a) Explain hyperchromic and hypochromic shifts.
(b) State and explain Beer-Lambert's law with its limitations.
2. (a) Write about different properties of EMR.
(b) Give the description and working of Visible spectrophotometer with labelled diagrams.
3. (a) Write about different types of detectors used in IR spectroscopy.
(b) Explain different IR region for absorption of various functional groups and explain Hook's law.
4. (a) Explain different sample handling techniques used in IR spectroscopy.
(b) Give the principle and instrumentation of IR spectroscopy with a sketch diagram.
5. (a) Explain theory and principle of NMR spectroscopy.
(b) Discuss about different factors affecting fluorescence emitted by organic molecules.
6. (a) Give the theory and principle of Mass spectroscopy.
(b) Explain the principle and properties of fluorescence.
7. (a) Explain various types of amperometric titrations.
(b) Enlist the types of electrodes used in potentiometer and explain in detail about hydrogen electrode.
8. (a) Write the principle and working of nephelometer.
(b) Explain about different types of conductometric titrations.
9. Write the following
(a) Paper chromatography (b) Thin layer chromatography
10. (a) Explain the principle and experimental procedure of paper electrophoresis.
(b) Write about different types detectors used in gas chromatography.

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FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (NON-CBCS) (Backlog) Examination, March 2021

Subject: Medicinal Chemistry - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 X 17 ½ Marks)

1. (a) Explain the SAR of Local anaesthetics.
(b) Write the structure, synthesis and uses of the following drugs.
(i) Diclofenac Sodium (ii) nalaxone
2. (a) Define anti-inflammatory agents. Classify them with minimum two examples.
(b) Write the synthesis and uses of the following drugs.
(i) Lidocaine (ii) Pethidine
3. Write the structure, synthesis, mode of action and uses of Chloramphenicol and Cephalexin.
4. Write a note on the following
(a) Aminoglycoside antibiotics
(b) Cephalosporins
5. Write the classification of antifungal agents. Write the synthesis and mention the mode of action of Ketoconazole and Fuconazole.
6. (a) Write in detail about anthelmintic drugs.
(b) Write the synthesis and mode of action of the following drugs.
(i) Dapsone (ii) Primaquine
7. (a) Write the classification antiparkinsonism drugs.
(b) Write a note on antipsychotic drugs.
8. (a) Write the synthesis and mode of action of Phenobarbitone.
(b) Define anticonvulsants and classify them with suitable examples.
9. (a) Write the structure, preparation and biochemical role of Vitamin E and Vitamin B2.
(b) Write the source, storage and biochemical role of Vitamin A and Vitamin D.
10. Write any three structures of essential amino acids and their role. Write in detail about development of protein drugs.

FACULTY OF PHARMACY

B. Pharmacy VII-Semester (PCI) (Main) Examination, March 2021

Subject: Pharmacy Practice

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7 X 3 = 21 Marks)

1. Describe the role of clinical pharmacist in health care setting?
2. Enumerate the types of drug related problems.
3. Mention the requisite Objectives for management of materials in hospital pharmacy.
4. Indicate the advantages and disadvantages of Unit Dose Distribution System.
5. Provide four examples of TDM drugs with their therapeutic range.
6. Give a brief note on Factors which influence drug variability?
7. Write a short note on the Material requirement for community pharmacy.
8. Define ADR and classify.
9. Explain types of drug interactions with example.
10. Write a note on rational use of drugs.

PART – B

Note: Answer any one question.

(1 X 14 = 14 Marks)

11. Define hospital formulary and elaborate the stepwise procedure involved in the preparation of hospital formulary.
12. What is clinical pharmacy? Elucidate functions and responsibility of clinical pharmacy.
13. Give a detailed account on the factors affecting Therapeutic Drug Monitoring.

PART – C

Note: Answer any five questions.

(5 X 8 = 40 Marks)

14. Explain the roles and responsibility of hospital pharmacist.
15. Write down the legal requirements for establishment and maintenance of drug store.
16. Enumerate the organization and functions of hospital.
17. Explain in detail about the role of pharmacist in medication adherence.
18. Define Pharmacy and Therapeutic Committee & explain the objectives, organization and functions.
19. Give comprehensive note on the steps involved in patient counseling.
20. Define Inventory Control. Specify the methods involved in Inventory Control.
21. Describe the procurement or purchasing procedure for pharmacists in detail.
22. Explain the various hematologic tests and their significance.

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FACULTY OF PHARMACY**B. Pharmacy VII-Semester (CBCS) (Backlog) Examination, March 2021****Subject: Dosage Formulation and Design (Pharmaceutics-III)****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ = 70 Marks)**

1. (a) Write the importance of preformulation studies.
(b) Discuss the roles of following preformulation studies.
i) Particle size and shape ii) Bulk density and Flow properties.
2. Write the effects and preventive measures for hydrolysis, oxidation and polymerization properties on formulation and stability of the products.
3. (a) Write the advantages and disadvantages of sustained action pharmaceuticals.
(b) Write about following sustained release formulations
i) Drug-complex formulation ii) Tableted Slow release granules.
4. (a) Define microencapsulation? Write the reasons for microencapsulation of products with examples?
(b) Explain the Air suspension and pan coating techniques for microencapsulation.
5. (a) Explain the various approaches used in development of TDDS.
(b) Write the applications of nanoparticles in drug delivery with examples.
6. (a) Explain the concept and design of Occuserts with examples.
(b) What are the different methods for preparation of liposomes? Explain physical dispersion methods for preparation of liposomes?
7. (a) Write definition and objectives of Bioavailability and Bioequivalence.
(b) Explain different enhancement methods for bioavailability.
8. (a) Write methods for assessment of bioavailability.
(b) Define validation? Write about different types of process validation.
9. (a) What is Quality Assurance and Quality control. Write a note on sources and control of quality variation.
(b) Write a note on Quality assurance at startup of manufacturing process.
10. (a) What are the different types of Quality Control Charts available? Write about QC charts for variables and attributes.
(b) Write a brief note on control of production procedures (Manufacturing control, Packing control and Labeling control).

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FACULTY OF PHARMACY

B. Pharmacy4/4 I-Semester (Non-CBCS)(Backlog) Examination, March 2021

**Subject: Dosage Formulation and Design
(Pharmaceutics-III)**

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

- 1 (a) Explain the importance of the following in preformulation studies.
(i) Partition coefficient (ii) Dissolution (iii) Crystallinity
(b) Explain the stability Protocol and accelerated stability testing.
- 2 Explain in detail the importance of preformulation studies in development of solid dosage form.
- 3 (a) Explain in detail about in vitro evaluation tests of sustained release dosage forms.
(b) What is microencapsulation? Explain about air suspension technique.
- 4 (a) Explain in detail about various approaches to develop sustained release dosage forms.
(b) Write various applications of microencapsulation in Pharmacy.
- 5 (a) Write various approaches to develop transdermal therapeutic systems with suitable examples.
(b) Write a note on liposomes.
- 6 (a) Explain various types of Ocular drug delivery systems.
(b) Explain different methods of preparation on nanoparticles.
- 7 (a) Explain the methods of assessment of Bioavailability.
(b) Write a note on CGMP.
- 8 Write various methods to enhance bioavailability.
- 9 (a) Explain the difference between QA and QC. What are the various sources of variation?
(b) Explain briefly about quality control charts.
- 10 (a) Discuss the stability testing protocols for various formulation.
(b) Explain briefly about the role of QA in the compounding of tablet dosage forms.

FACULTY OF PHARMACY

B. Pharmacy V-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject : Pharmacology – II

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 haematinics and give examples.
- 2 Explain the uses of antihistaminics and give examples
- 3 Write a note on Allopurinol.
- 4 What are the uses of Plasma volume expanders?
- 5 Write a note on Spironolactone.
- 6 What are different uses of 5-HT antagonists?
- 7 What are the adverse effects of Corticosteroids?
- 8 Explain the mechanism of action of Statins.
- 9 Write about the steps of thyroid hormone synthesis.
- 10 What are anabolic steroids? What are their uses?

PART- B (1x14=14 Marks)

- 11 (a) Define and classify Oral Hypoglycemic agents.
(b) Write in detail about Sulphonylureas.
- 12 (a) Classify Diuretic agents.
(b) Explain the pharmacology of Thiazide diuretics.
- 13 Explain various methods of bioassays of Insulin and Oxytocin.

PART-C (5x8=40 Marks)

- 14 Explain about tocolytic agents.
- 15 Define Bioassay. What are different types of Bioassays.
- 16 Write the pharmacology of COX-II Inhibitors.
- 17 Classify antiarrhythmics. Add a note on class II antiarrhythmics.
- 18 Write a note on hormonal contraceptives.
- 19 Write the pharmacological actions and uses of prostaglandins.
- 20 Explain the pharmacology of Oxytocin.
- 21 Define Coagulants. Add a note on fibrinolytics.
- 22 Write a note on Calcium regulation in body.

FACULTY OF PHARMACY
B. Pharmacy V-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Physical Pharmacy - I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

1. (a) Describe Ideal Gas law in detail.
(b) Explain Rules relating to Triangular Diagrams.
2. (a) Write a note on Polymorphism and Amorphous solids.
(b) Define Phase rule. Explain the construction of phase diagram of phenol water system.
3. (a) Explain Hess's Law of Heat of summation and its application.
(b) Describe the second law of thermodynamics.
4. (a) What is Law of Conservation of Energy? Explain the first law of thermodynamics.
(b) Define Internal Energy, Enthalpy and Heat Capacity.
5. (a) What are Colligative properties? Explain boiling point elevation in detail and derive an expression for Mol. Wt. determination of solute.
(b) Explain Sorensen's pH scale in detail.
6. (a) Enumerate Arrhenius theory of electrolytic dissociation.
(b) Describe Ideal and real solutions.
7. (a) Explain buffer equation/Henderson Hasselbalch equation for weak acid and its salt.
(b) Describe different methods of adjusting tonicity,
8. (a) Write about Buffers in Pharmaceutical and biological systems (in vivo biologic buffer Systems).
(b) Explain buffer capacity and describe influence of concentration on buffer capacity.
9. (a) Explain Types of Electrode in detail with diagrams.
(b) Define Catalysis. Explain types of catalyst.
10. (a) Describe the Electrochemical cell with diagram.
(b) What are catalytic poisons? Explain factors effecting Catalysis.

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FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Semester (Non-CBCS)(Backlog) Examination, March 2021****Subject : Physical Pharmacy – I****Time : 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ =70 Marks)**

- 1 (a) Write and explain the postulates of the kinetic molecular theory.
(b) Explain the various methods of achieving liquefaction of gases.
- 2 (a) Write a note on phase rule. Explain the phenol-water two component system.
(b) Write a note on: (i) DSC and DTA (ii) X-Ray diffraction
- 3 (a) Explain laws of conservation of energy.
(b) State and explain first law of thermodynamics.
(c) Write a note on free energy function and work function and their applications.
- 4 (a) Derive an expression to determine efficiency of steam engine.
(b) Define: (i) Heat of formation and combustion (ii) Enthalpy and Entropy
- 5 (a) Explain derivations of Raoult's law.
(b) Explain colligative properties for determination of molecular weight of non-electrolyte.
- 6 (a) Derive an equation for finding the hydrogen ion concentration in ionization of weak acids.
(b) Write a note on Sorenson's pH scale.
(c) What are ampholytes? Explain their ionization.
- 7 (a) Explain different methods for adjusting isotonicity and pH of solutions.
(b) Write a note on pharmaceuticals buffers and physiological buffers.
- 8 (a) Explain the relation between pH, pKa and solubility of weak electrolytes.
(b) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and its applications.
- 9 (a) Write a note on different types of electrodes. Explain pH measurement using hydrogen electrode.
(b) How do you determine PKa using potentiometry?
(c) Write Nernst equation and explain the terms therein.
- 10 (a) Write applications of Oxidation-Reduction Potentials (Redox potentials) in pharmacy.
(b) Write a note on: (i) Catalyst (ii) Oxidation reduction electrodes.

FACULTY OF PHARMACY
B. Pharmacy VII-Semester (PCI) (Main) Examination, March 2021

Subject: Novel Drug Delivery Systems

Time: 2 Hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7 X 3 = 21 Marks)

1. Write the advantages and disadvantages of controlled release dosage forms.
2. Explain various pharmacokinetic properties for selection of drug for controlled drug delivery system.
3. What are niosomes, write its structural components.
4. What are transdermal drug delivery system. Write its applications.
5. Write the advantages and disadvantages of mucoadhesive drug delivery system.
6. Define microspheres and microcapsules.
7. Write note on permeation enhancers with examples.
8. What is floating time and floating lag time.
9. Write the applications of targeted drug delivery system.
10. Write about classification of liposomes.

PART – B

Note: Answer any one question.

(1 X 14 = 14 Marks)

11. Explain the approaches used in development of gastro retentive drug delivery systems.
12. Explain in detail coacervation phase separation with suitable examples.
13. Discuss classification, properties and applications of polymers used in controlled drug delivery system.

PART – C

Note: Answer any five questions.

(5 X 8 = 40 Marks)

14. Discuss the physicochemical factors affecting controlled drug delivery system.
15. Explain the principles of mucoadhesion.
16. Write a note on metered dose inhaler.
17. Discuss the basis used in development of transdermal drug delivery system.
18. Explain about intra-uterine devices.
19. Write about production of monoclonal antibodies.
20. Discuss the ocular barriers, methods to overcome barriers.
21. Explain the approaches used in development of controlled drug delivery systems.
22. Explain the formulation considerations of buccal drug delivery system.

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FACULTY OF PHARMACY**B. Pharmacy VII-Semester (CBCS) (Backlog) Examination, March 2021****Subject: Biopharmaceutics & Pharmacokinetics****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ = 70 Marks)**

1. (a) Write a note on passive diffusion process for absorption of drugs.
(b) Explain any three Physico chemical factors affecting drug absorption.
2. (a) Enumerate various theories of drug dissolution.
(b) Explain the application of pH partition theory in predicting the drug absorption.
3. (a) Discuss the factors effecting drug-protein in binding.
(b) Explain various physiological barriers to drug distribution.
4. (a) Write a note on various factors affecting drug distribution.
(b) Describe plasma protein – Drug binding in detail.
5. (a) Explain phase I biotransformation reactions in detail.
(b) Explain about the concept of clearance.
6. (a) Describe the factors affecting renal excretion of the drugs.
(b) Write about drug metabolizing enzymes.
7. (a) Explain the methods of dose adjustment in patients with renal failure.
(b) Write in detail about pharmacokinetic drug interactions and its significance in combination therapy.
8. (a) Explain the following pharmacokinetic parameters – apparent volume of distribution, half-life and clearance.
(b) Write about zero and first order kinetics with graphical illustration.
9. (a) Explain the method of residuals for calculation of absorption rate constant.
(b) Explain rate of excretion method for the determination first order elimination rate constant from urine data.
10. 184mg of Ceftriaxone IV bolus injection provided following serum levels as a function of time. Assume that the drug follows one compartment open model and calculate all possible pharmacokinetic parameters.

Time (hrs)	1	6	12	24	48	72	96	144
Concentration (mg/ml)	137	120	103	76	42	23	12	3.7

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FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject: Pharmaceutical Business Management

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

- 1 a. Write the functions of management at various levels.
b. Describe different elements of total quality management.
- 2 a. Explain batch and continuous production in process planning and mention the benefits and drawbacks.
b. Explain procedures of good safety practices in production and quality control.
- 3 a. Describe different approaches of air conditioning and dust collection systems.
b. Explain GMP requirements for equipment and documentation of records.
- 4 a. Write different types of layouts and mention the factors influencing their selection.
b. Explain various general workflow patterns.
- 5 a. What is economic order quantity and its significance in stores management?
b. Explain storage space requirements and special provisions for storage in drug store.
- 6 a. What is ABC analysis and its role in materials management?
b. Write the procedures of receiving, inspection, and issue in drug store.
- 7 a. Describe various methodologies of promotion and demotion.
b. Explain different merit rating procedures and fixing of remuneration.
- 8 a. Describe individual and group behaviours and their role in industrial psychology.
b. Explain various theories of motivation.
- 9 a. Explain the socio-psychological characteristics of consumer and their role in marketing.
b. Write the role of wholesaler and retailer in distribution.
- 10 a. Explain product life cycle and its role in marketing.
b. Describe the role of window and interior display in sales promotion

FACULTY OF PHARMACY**B. Pharmacy IV - Semester (PCI) (Backlog) Examination, March 2021****Subject: Pharmaceutical Organic Chemistry - III****Time: 2 Hours****Max. Marks: 75****Note: Answer any seven questions from Part – A, and one question from Part – B, and any five questions from Part – C.****PART – A (7x3=21 Marks)**

1. Describe the terms plane polarized light and meso compound.
2. Write any one method of synthesis of Oxazole.
3. Mention any two reactions of Pyrazole.
4. Define geometrical isomerism with examples.
5. Give two applications of Lithium Aluminium Hydride.
6. Write the structures and medicinal use of Isoxazole and thiazole.
7. Write any two reactions of acridine.
8. Discuss the conformations of ethane.
9. Write the names of any two compounds containing indazole and oxazole.
10. Define elements of symmetry.

PART – B (1x14=14 Marks)

11. (a) Explain sequence rules to determine R and S configuration.
(b) Write the conformational isomerism in Butane.
12. Outline any two methods of preparation and three reactions of Pyrrole and Furan.
13. Describe the mechanism of following reactions
(i) Beckmann rearrangement (ii) Oppenauer oxidation.

PART - C (5x8=40 Marks)

14. Discuss two applications of Claisen Schmidt condensation.
15. Discuss any two methods of resolution of racemic modification.
16. Outline the method of preparation of Quinoline and Isoquinoline.
17. Write any three reactions and uses of thiophene.
18. Write a note on basicity of Pyridine.
19. Give the structures and specific uses of drugs containing (i) pyrimidine (ii) purine.
20. Explain stereospecific and stereoselective reactions with examples.
21. Explain Fischer Indole synthesis.
22. Give a brief account on Asymmetric synthesis.

FACULTY OF PHARMACY

B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

1. (a) Explain why sucrose is a non-reducing sugar and fructose is a reducing sugar with suitable structures.
(b) Describe the role of Fehling B in the determination of reducing sugars with appropriate structures.
(c) What are osazones? Explain its significance.
(d) Write any six reactions of maltose.
2. Enlist any ten methods used for the analysis of fats and oils. Write the procedure, principle and significance of any three of them with appropriate chemical equations.
3. Explain any seven methods by which end groups of proteins are ascertained with suitable chemical equations.
4. (a) What are oxytocin and thyroxine?
(b) Explain how the structure of oxytocin and thyroxine was elucidated.
5. (a) Write the source, structure, nomenclature and uses of arbutin, amygdalin and quercetin.
(b) Enumerate the steps involved in the synthesis of citral and menthol.
6. (a) What are terpenoids? Explain isoprene rule and special isoprene rule with suitable examples.
(b) What are flavanoids? Explain the general method of structural elucidation of flavanoids along with their four synthetic methods.
7. (a) Explain how the structure of atropine was elucidated along its synthesis.
(b) Write the synthesis, therapeutic category and uses of caffeine.
8. (a) What are alkaloids?
(b) Classify them with structural examples.
(c) Explain the general method of structural elucidation of alkaloids.
9. (a) Write the structure of the following:
(i) Steroid having cis-anti-trans-anti-trans backbone. (ii) 5- α -cholestane.
(iii) 17, 21-dihydroxy pregna-1, 4-diene-3, 11, 20-torine (iv) 5- β estrance
(b) What are steroidal saponins. Classify them with structural examples.
(c) Explain any four methods employed for the isolation of steroids.
10. What are glucocorticoids and mineralcorticoids? Write the structure, biological action, uses and mechanism of action for any one glucocorticoid and any one mineralocorticoid.

FACULTY OF PHARMACY

B. Pharmacy I Year (NON - CBCS) (Backlog) Examination, March 2021

Subject: Anatomy, Physiology and Health Education

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

1. (a) Explain the various mechanisms of transport across the plasma membrane.
(b) Write a note on bone tissue.
2. (a) Define tissue? Write about properties and functions of epithelial tissue.
(b) Explain the various types of muscle tissues.
3. (a) Explain the physiology of nerve impulse.
(b) Write about autonomic nervous system.
4. (a) Define clot? Explain the different types of pathways involved in the process of clotting.
(b) Write a note on ECG.
5. (a) Define Vital capacity? Discuss the neuronal regulation of respiration.
(b) Write about hypo and hyper secretions of parathyroid gland.
6. (a) Discuss about formation, storage, release and actions of thyroid hormones.
(b) Explain the gross anatomy of alimentary canal.
7. (a) Explain the physiology of urine formation and the factors affecting it.
(b) Write about structure and functions of skin.
8. (a) Explain anatomy of ear with a neat labeled diagram.
(b) Write about the physiology of smell.
9. (a) Write about family planning.
(b) Define neoplasm? Explain various types of neoplasm.
10. (a) Write about any two nutritional disorders.
(b) Write a note on edema and shock.

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FACULTY OF PHARMACY**B. Pharmacy VI - Semester (CBCS) (Suppl.) Examination, March 2021****Subject: Physical Pharmacy - II****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17 ½ = 70 Marks)**

1. (a) Define solubility, polar and semi polar solvents. Give various solubility expressions as per USP.
(b) Explain in detail about effect of ionic dissociation and molecular association on partition and extraction.
2. (a) Write a note on effect of pressure and temperature, salting out on Solubility of gases in liquids.
(b) Give a note on Preservative action of weak acids in emulsions.
3. (a) Define Rate and Order of a reaction and Molecularity of a reaction.
(b) Explain the influence of temperature, solvents, Ionic strength on the reaction rate.
4. (a) Give a detailed note on Accelerated stability analysis.
(b) Write reaction rate constant, half life and shelf life expressions for a first order reaction.
5. (a) Differentiate surface and interfacial tensions. Explain Du Nouy ring method for the determination of Surface tension.
(b) Write the applications of Adsorption phenomena.
6. (a) Define HLB. Give different methods of estimation of HLB value.
(b) Explain Electrical properties of interfaces with electrical double layer illustration.
7. (a) Explain porosity and various types of packing arrangements of particles in a powder.
(b) Differentiate the three types of colloids and explain the methods of preparation of lyophobic colloids.
8. (a) Explain the stability of colloids on the basis of DLVO theory.
(b) Write note on Air permeability method for the determination of surface area.
9. (a) Classify different types of polymers from the point of utility.
(b) Explain Newton's law of flow of fluids and describe about Ostwald's viscometer along with diagram.
10. (a) Explain (i) Thixotroy & measurement (ii) Pharmaceutical applications of Polymers.
(b) Explain different types of non Newtonian systems with Rheograms.

FACULTY OF PHARMACY**B. Pharmacy 2/4 II-Semester (Non-CBCS)(Backlog) Examination, March 2021****Subject: Pharmaceutical Organic Chemistry – II****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4x17½=70Marks)**

- 1 a) Explain the mechanism of Nitration and Sulphonation in Benzene.
b) Explain the Nucleophilic substitution in Halobenzenes
- 2 a) Explain acidity of phenols.
b) Write the structure and electrophilic substitution reactions of Anthracene.
- 3 a) Write in detail about Conformational isomerism with examples.
b) What is racemic modification? How do you resolve racemic modification.
- 4 a) Discuss cis- trans isomerism with examples.
b) Define and explain Elements of symmetry.
- 5 a) Write a note on Fischer indole synthesis.
b) Discuss the Electrophilic aromatic substitution reactions of Pyridine
- 6 a) Write any two methods of synthesis of thiophene.
b) Discuss the Oxidation reactions of Quinoline & Isoquinoline.
c) Write the structure and specific uses of drug compounds containing
i) Pyrrole ii) Furan
- 7 a) Outline the method of preparation and important reactions of Pyrazole.
b) Write the structure and specific uses of drug compounds containing
i) Phenam ii) Cepham iii) Oxazine
- 8 a) Outline the method of preparation and chemical reactions of Isoxazole.
b) Write the structure and specific uses of drug compounds containing
i) Thiazole ii) Diazine iii) Oxazole
- 9 a) Write two applications for each of the following
i) Selenium oxide ii) Lead tetra acetate iii) N-Bromosuccinimide
b) Describe mechanism of following reaction
i) Oppenauer oxidation ii) MPV reduction
- 10 a) Explain birch reduction and Arndt-Eistert synthesis.
b) Mention two applications of LAH.

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B. Pharmacy II - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Organic Chemistry - I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.**(4x17^{1/2}=70 Marks)**

1. Discuss the following with suitable examples.
 - (a) Different types of covalent bonds.
 - (b) Solubility.
 - (c) Polarity of molecules.
2. (a) Explain with suitable examples:
 - (i) Inductive effect (ii) Mesomeric effect (iii) Resonance.
 - (b) Explain energy diagrams of reactants and products during the course of reaction.
3. (a) Write the mechanism of free radical reactions.
 - (b) Write any four methods of synthesis of Alkanes.
4. (a) Write the general methods of preparations of alkynes.
 - (b) Discuss the importance of Bayer's strain theory.
5. (a) Explain the mechanism of :
 - (i) SN¹ and SN² reactions.
 - (ii) E¹ and E² reactions.
 - (b) Write a note on oxidation of alcohols.
6. (a) Write in brief about the preparation and reactions of Ethers.
 - (b) Write a note on Walden inversion.
7. (a) Write the reaction and mechanism of following:
 - (i) Aldol condensation.
 - (ii) Wittig reaction.
 - (iii) Reformatsky reaction.
 - (b) Write any four methods for preparation of carbonyl compounds.
8. (a) Write note on relative basicity of amines.
 - (b) How do you differentiate between primary, secondary and tertiary amines with chemical reactions?
9. (a) Write the synthetic applications of Acetoacetic ester and Malonic ester.
 - (b) Write any two methods for synthesis of carboxylic acids.
10. (a) Explain in detail the acidity of carboxylic acids with examples.
 - (b) Outline the methods of preparation of acid chlorides and esters known to you.

FACULTY OF PHARMACY**B. Pharmacy IV-Semester (PCI) (Backlog) Examination, March 2021****Subject: Medicinal Chemistry - I****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. Write the uses of cholinesterase inhibitors with two drug examples.
2. Write the structure and uses of Phenytoin.
3. Define geometrical isomerism with examples.
4. Write the structure and uses of any two anti inflammatory drugs.
5. Mention the uses of Adrenergic receptors blockers with two drug examples.
6. Explain the effect of solubility in relation to biological action of drug.
7. Write any two uses of Cholinergic blocking agents with examples.
8. Write the advantages of selective Cox-2 inhibitors.
9. Define and classify anticonvulsant drugs with suitable example.
10. Define sedative and hypnotic with examples.

PART – B (1 x 14 = 14)

11. What is drug metabolism? Write the factors influencing drug metabolism including stereochemical aspects.
12. Write the mechanism of action, uses and SAR of morphine analogues. Outline the synthesis of (a) Meperidine Hcl (pethidine) (b) Fentanyl citrate.
13. Write the classification, mechanism of action, SAR and uses of parasympathomimetic agents, at least 2 structures for each class.

PART - C (5 x 8 = 40)

14. Write the importance of Bio-isomerism in drug design.
15. Write a note on ganglionic blocking agents.
16. Write the SAR of β -adrenergic blockers. Outline the synthesis mechanism of action and uses of propranolol.
17. Write a note on narcotic antagonists. Write the structures and uses of (a) Naloxone Hcl, (b) Nalorphine Hcl.
18. Define anti inflammatory agents. Write the classification, mechanism of action and uses of NSAIDS, at least 2 structures for each class.
19. Outline the synthesis, mechanism of action and uses of (a) Halothane (b) Ketamine Hcl.
20. Explain in detail about SAR of Barbiturates.
21. Define and classify cholinergic blocking agents. Explain the SAR of tropane alkaloids.
22. Write the synthesis of Ibuprofen.

FACULTY OF PHARMACY

B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Engineering - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 1/2 = 70 Marks)

1. (a) Explain the procedure to determine the particle size and particle size distribution by sieve analysis.
(b) Differentiate between end runner mill and edge runner mill.
2. (a) Write construction and working of Podbielniak extractor with help of diagram.
(b) Differentiate between maceration and percolation process.
3. (a) Write the material and energy balances in evaporation process.
(b) Write working principles of short tube evaporators.
4. (a) Explain the theories applied to binary mixtures in distillation process.
(b) Explain the principle and working of steam distillation in large scale.
5. (a) Explain different stages in drying rate curve and mention the significance of EMC.
(b) Write construction working of tray dryer.
6. (a) Describe the different gas absorption towers.
(b) Explain the concept of two way flow through packed tower and mention the importance of flood point.
7. Explain different ion exchange resins principle of working and mention their applications in pharmacy.
8. (a) Classify different liquid-liquid mixing devices and mention their operation, advantages and drawbacks.
(b) What is vortex formation and mention the preventive measures.
9. Describe the factors affecting strength of granules and tablets.
10. Explain the working principle of measurement devices for temperature and vacuum.

FACULTY OF PHARMACY**B. Pharmacy I – Year (Non-CBCS) (Backlog) Examination, March 2021****Subject : Pharmaceutical Inorganic Chemistry****Time: 2 Hours****Max. Marks: 70****Note: Answer any Four Questions****(4 x 17^{1/2} = 70 Marks)**

- 1 a) What are limit tests? Mention the principle involved in the limit test for heavy Metals.
b) Define qualitative analysis. Write about qualitative tests for two cations and two anions.
- 2 a) Explain the classification of Inorganic pharmaceuticals based on their applications with examples
b) Mention the principle and procedure involved in the limit test for Iron
- 3 Define and classify antacids with examples. Mention the method of preparation, properties and uses of aluminum hydroxide gel and magnesium sulphate.
- 4 a) What are calcium Replenishers? Explain the role of Calcium in the body? Mention the method of preparation, assay and uses of sodium Chloride and potassium citrate
b) Write a note on Intraperitoneal dialysis fluids
- 5 a) Define Haematinics? Give examples. Explain any one Haematinic
b) Mention the method of preparation, properties and uses of sodium phosphate and zinc chloride.
- 6 a) Write a brief note on purified water and silica gel
b) Explain the method of preparation, properties and uses of Di calcium phosphate
- 7 a) Define and classify expectorants with examples
b) Mention the method of preparation, properties, assay method & uses of ammonium chloride and copper sulphate
- 8 Explain the method of preparation, properties and uses of (i) Nitrous oxide
(ii) Sodium Thiosulphate (iii) Potassium antimony tartarate
- 9 a) Mention the mechanism of action of antiseptics
b) Mention the method of preparation, assay & uses of Hydrogen peroxide, Calcium carbonate and zinc oxide.
- 10 Explain the method of preparation, properties, uses of (i) Cisplatin (ii) Barium sulphate (iii) Activated Dimethicone

FACULTY OF PHARMACY

B. Pharmacy VI-Semester (CBCS) (Supplementary) Examination, March 2021

Subject: Pharmacology - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.**(4 x 17^{1/2}= 70 Marks)**

1. (a) Classify anticancer drugs. Enlighten their actions on Cell cycle. Add note on common toxicities of anticancer drugs.
(b) Write the mechanism of actions and therapeutic uses of Alkylating agents and antimetabolites.
2. Write the mechanism of action, adverse effects and therapeutic uses of the following:
 - (i) Streptomycin.
 - (ii) Isoniazid.
 - (iii) Zidovudine.
 - (iv) Ketocanazole.
3. (a) What about the biosynthesis of nitric oxide. Enumerate the pharmacological actions of nitric oxide on vascular endothelium. Add note on Nitric oxide donors and inhibitors.
(b) Classify antihistamines. Write the pharmacological action of histamine.
4. Write about the following:
 - (i) Oral anticoagulants.
 - (ii) Eicosanoids.
 - (iii) Serotonin agonists and antagonists.
5. Classify Oral Hypoglycaemic drugs. Explain the mechanism of action of any two class drugs with suitable example.
6. Write a note on the following:
 - (i) Antithyroid drugs.
 - (ii) Oral Contraceptives.
 - (iii) Oxytocin.
 - (iv) Glucagon.
7. Define Bio assays. Enlighten the importance and various types of bioassays. Discuss the merits and demerits of bioassay.
8. Discuss the bioassay of
 - (i) Digitalis.
 - (ii) Insulin.
9. (a) Explain the principles involved in the treatment of poisoning.
(b) Discuss the symptoms and treatment of Organophosphorus poisoning.
10. Write a note on:
 - (i) Heavy metal poisoning.
 - (ii) Clinical Trials.

FACULTY OF PHARMACY

B. Pharmacy 2/4 II-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject : Pharmaceutical Biochemistry

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

- 1 (a) Write a note on Energy rich compounds.
(b) Write a note on production of ATP with its biological significance.
(c) Explain Reduction potential with examples.
- 2 (a) Write a note on Mitochondria, Golgi Complex and Lysosomes.
(b) Explain the structure of cell membrane. Explain Active transport, Passive transport and Facilitated diffusion transport.
- 3 (a) Classify Enzymes and Co-enzymes. Mention all the applications of enzymes.
(b) Explain mechanism of enzyme action.
(c) Explain enzyme repression with example.
- 4 (a) Explain TCA cycle with Energetics.
(b) Explain HMP pathway.
- 5 (a) Explain beta oxidation of fatty acids.
(b) Write a note on ketogenesis.
- 6 (a) Classify Lipids. Mention the significance of lipids.
(b) Explain the biosynthesis of Palmitic acid.
- 7 (a) Write a note on Physical and chemical mutagenesis.
(b) Explain biosynthesis of purines.
- 8 (a) Write a note on DNA and RNA.
(b) Explain the mechanism of Protein synthesis.
(c) Mention the inborn errors in metabolism.
- 9 (a) Explain the principle and method involved in qualitative and quantitative analysis of glucose and creatinine in blood.
(b) Explain feed back inhibition.
- 10 (a) Explain principle and method involved in qualitative and quantitative analysis of bile salts and ketone bodies in urine.
(b) Explain the role of cyclic AMP in enzyme activation, repression and induction.

FACULTY OF PHARMACY**B. Pharmacy II-Semester (CBCS) (Backlog) Examination, March 2021****Subject: Introduction to Dosage Forms****Time: 2 Hours****Max. Marks: 70****Note: Answer any four questions.****(4 x 17^{1/2} = 70 Marks)**

1. (a) Classify various dosage forms with examples.
(b) Write the principle and procedure involved in the preparation of simple syrup.
(c) Write any two methods of preparation of Aromatic waters.
2. (a) Define a spirit. Explain any two methods of preparation of spirits.
(b) Distinguish between
 - (i) Lotions and liniments.
 - (ii) Creaming and cracking.
3. (a) Classify Tablets? Write any one method of preparation of tablets.
(b) Differentiate hard gelatin and soft gelatin capsules. Write the processing of hard gelatin capsules.
4. (a) Classify powders. Write the principle and procedure involved in the preparation of effervescent granules.
(b) Write a note on Tablet triturates.
5. (a) Write about different types of ointment bases with their advantages and limitations.
(b) Write the principle and procedure in the preparation of cold cream.
6. (a) Discuss about the different bases used in the preparation of suppositories.
(b) Distinguish between pastes and jellies.
7. Define and classify sterilization. Discuss about dry heat and moist heat sterilization with applications.
8. (a) Distinguish between
 - (i) Vials and ampoules.
 - (ii) Water for injection and distilled water.
(b) Give the composition and preparation of Normal saline solution.
9. What is incompatibility? Mention the types of incompatibilities. Discuss in detail about chemical incompatibility by giving suitable examples. Mention the methods to overcome.
10. Write a note on physical incompatibility and therapeutic incompatibility with examples and mention the methods to overcome.

FACULTY OF PHARMACY

B. Pharmacy 2/4 II-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject : Pharmaceutical Engineering - II

Time : 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

- 1 (a) Explain different expression equipment with help of diagrams.
(b) Describe working principle of anyone screening equipment.
- 2 (a) Describe the procedure to measure the particle size using sieves.
(b) Write the construction and working of double cone classifier.
(c) Differentiate between sedimentation and elutriation.
- 3 (a) Write the construction and working of long tube evaporator.
(b) Explain the mass and energy balances in evaporation.
- 4 (a) Explain the construction and working of steam distillation unit.
(b) Describe the construction principle, advantages, drawbacks of molecular distillation.
- 5 (a) Explain different stages of drying rate curve.
(b) Write construction and working drum dryer.
- 6 (a) Write the importance of crystallization in pharmacy.
(b) What is caking of crystals and mention the preventive measures.
(c) Differentiate between gas absorption and desorption.
- 7 (a) Write the objectives of mixing.
(b) Write the construction and working of triple roller mill.
- 8 Classify mixing impellers. Mention their characteristics and applications.
- 9 (a) Write the approaches to measure the punch forces.
(b) Write the factors affecting strength of granules.
- 10 (a) What is automatic process control. Mention the advantages of it.
(b) Explain the tools to measure the variable-pressure.

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FACULTY OF PHARMACY

B. Pharmacy IV – Semester (PCI) (Backlog) Examination, March 2021

Subject: Physical Pharmaceutics - II

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. What is HLB? What are its applications?
2. What is Tyndall effect?
3. Define surface tension. Mention its applications.
4. Define viscosity. Mention its applications.
5. Write stokes equation for sedimentation of particles.
6. What is Hooke's law? Give idea about plastic and elastic deformation.
7. Write the applications of microemulsions.
8. What is bulk density? Mention its applications.
9. What is first order reaction? Give some examples of first order reaction.
10. What is photo degradation? How it can be prevented?

PART – B (1 x 14 = 14)

11. Explain about methods for determination of viscosity.
12. Explain about formulation of flocculated and deflocculated suspensions.
13. Discuss about methods for determining order of reaction.

PART - C (5 x 8 = 40)

14. Explain about association of colloids.
15. Explain about plastic flow of liquids and give idea about plastic viscosity.
16. Write about theories of emulsification.
17. Mention the measures to prevent hydrolysis.
18. Write the principle as well as method for determination of surface tension.
19. State Fick's first law of diffusion and its role in colloids.
20. Write about hydrolytic degradation and its prevention.
21. Write the limitations of accelerated stability testing.
22. Explain about preservation of emulsion.

FACULTY OF PHARMACY

B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Biochemistry

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

1. Explain transport process across cell membrane.
2. Explain the biochemical organization of a cell.
3. Explain mechanism of action and inhibition of enzymes.
4. Explain about Glycogenolysis and electron transport.
5. Explain biosynthesis of cholesterol.
6. (a) What are ketone bodies? Explain biosynthesis of ketone bodies.
(b) Explain about biosynthesis of saturated fatty acids.
7. Explain biosynthesis of purine and pyrimidines.
8. (a) What are nucleotides.
(b) Explain the formation of uric acid
(c) Write a note on transcription.
(d) Write a note on translation.
9. Explain the Qualitative and quantitative analysis of blood for SGPT and Bilirubin.
10. Qualitative and quantitative analysis of urine for bile pigments and ketone bodies.

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (CBCS) (Supplementary) Examination, March 2021

Subject: Pharmacognosy - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

1. (a) Define alkaloids and write a classification of alkaloids with suitable examples.
(b) Describe chief anatomical features of Nuxvomica and cinchona. Give biological source, chemical constituents and uses of cinchona.
2. (a) Describe the microscopical characters of following drug (i) Vasaka (ii) Cinchona.
(b) Write a informative note on opium.
3. (a) What are glycosides? Classify glycosides. Write a note on saponinglycosides.
(b) Give biological source, chemical constituents and uses of (i) Digitalis (ii) Senna.
4. (a) Give biological source, chemical constituents and uses of (i) Squill (ii) Black Mustard.
(b) Write the systematic pharmacognostic study of Indian Senna.
5. (a) Describe method of isolation and estimation of Quinine from Cinchona.
(b) Give biological source, chemical constituents with structure and uses of (i) Clove (ii) Fennel.
6. (a) Describe method of isolation and estimation of Caffeine from tea.
(b) Write the classification of volatile oils and Isolation methods.
7. (a) Discuss immobilized plant cell culture technology.
(b) Explain cell suspension culture technique.
8. (a) Discuss nutritional requirements of an ideal plant tissue culture medium.
(b) Discuss the application of plant tissue culture technique in production of secondary metabolites.
9. (a) Write in detail about standardization of Raw materials.
(b) Give the preparation of Bhasma and Arista with examples.
10. (a) Justify Traditional Plant, Medicines as source of New drugs.
(b) Give the preparation of Asawas and Churnas.

FACULTY OF PHARMACY**B. Pharmacy IV - Sem. (PCI) (Backlog) Examination, March 2021****Subject: Pharmacology - I****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 bioavailability and volume of distribution.
2. What is biological half life and its importance.
3. Define tolerance and tachyphylaxis.
4. Classify neurotransmitters with examples.
5. Define (i) Sedative (ii) Hypnotic.
6. Write the examples of beta blockers with intrinsic sympathomimetic activity.
7. Write any two differences between GABA_A and GABA_B receptors with examples.
8. Differentiate typical and atypical antipsychotics.
9. Define therapeutic index. Write the examples of narrow therapeutic index drugs.
10. Write any two examples of CYP enzyme inducers and inhibitors.

PART – B (1 x 14 = 14)

11. Define Receptor. Classify receptors and explain about G-Protein coupled receptors with signaling transduction mechanisms.
12. Write the pharmacology of
(a) Diazepam (b) Morphine (c) Propranolol
13. Classify sympathomimetic drugs with examples. Explain the pharmacology of adrenaline.

PART - C (5 x 8 = 40)

14. Write a note on phase-I biotransformation reactions with examples.
15. Discuss about pharmacokinetic drug interactions with suitable examples.
16. Explain about the mechanism of action, adverse effects and uses of
(a) Local anaesthetics.
(b) Curare alkaloids.
17. Explain the mechanism of action, adverse effect and uses of
(a) Beta blockers.
(b) Anticholinesterases.
18. Classify antidepressants with examples. Write the mechanism action and adverse effects of tricyclic antidepressants.
19. Write about mechanism and stages of general anesthesia.
20. Explain about cholinergic transmission.
21. Classify sedative-Hypnotics with examples. Explain mechanism of action, adverse effects and uses of barbiturates.
22. Write a note on various phases of clinical trials.

FACULTY OF PHARMACY

B. Pharmacy I-Year (Non-CBCS)(Backlog) Examination, March 2021

Subject: Mathematics

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

- 1 (a) If $x = 1 + \log_a bc$, $y = 1 + \log_b ca$, $z = 1 + \log_c ab$ prove that $xyz = xy + yz + zx$.
- (b) Show that $A + B = 45 \Leftrightarrow (1 + \tan A)(1 + \tan B) = 2$. Hence show that $\tan\left(22\frac{1}{2}\right) = \sqrt{2} - 1$
- 2 (a) Prove that $2 \log \frac{3}{5} + 3 \log \frac{5}{7} + 2 \log \frac{7}{3} = \log \frac{5}{7}$.
- (b) Show that $\cos A = \frac{\cos 3A}{2 \cos 2A - 1}$. Hence find $\cos 15$.
- 3 (a) Find the derivative of $e^x - x^2 \sin x$.
- (b) Find the maximum and minimum values of $f(x) = x^3 - 6x^2 + 9x + 15$.
- 4 (a) If $y = ae^x + be^{-x}$ find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$.
- (b) Find the derivative of $5^x + e^x \log x$.
- 5 Evaluate $\int \frac{1}{3 + 5x - 2x^2} dx$.
- 6 (a) Evaluate $\int \frac{3x + 7}{3x^2 + 14x - 5} dx$.
- (b) Evaluate $\int (5 - 7x)^4 dx$.
- 7 (a) Show that $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a - b)(b - c)(c - a)$.
- (b) Find the inverse of $A = \begin{bmatrix} 1 & 0 & 2 \\ 2 & 1 & 0 \\ 3 & 2 & 1 \end{bmatrix}$.

..2..

8 (a) Show that
$$\begin{vmatrix} bc & b+c & 1 \\ ca & c+a & 1 \\ ab & a+b & 1 \end{vmatrix} = (a-b)(b-c)(c-a) .$$

(b) If $P = \begin{bmatrix} 0 & 1 \\ 2 & 3 \end{bmatrix}$, $Q = \begin{bmatrix} -1 & 2 \\ 4 & 3 \end{bmatrix}$ and $R = \begin{bmatrix} 2 & -1 \\ 6 & 5 \end{bmatrix}$

Show that $P(Q+R)=PQ + PR$

9 Find the equations of the circle passing through the points (1, 2), (3, -4) and (5, -6).

10 Find the equation of the straight lines cutting off intercepts a, b on the coordinate axes such that $a + b = 5$, $ab = 6$.

FACULTY OF PHARMACY

B. Pharmacy I-Year (Non-CBCS)(Backlog) Examination, March 2021

Subject: Biology

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17^{1/2}=Marks)

- 1 a) What are plant tissues? Classify them and explain any one type in detail.
b) Describe mitosis- cell division in plants.
- 2 a) Draw neat labeled diagram of transverse section of dicot leaf and explain.
b) Explain about root modification.
- 3 a) Describe the taxonomy of Apocynaceae family.
b) Describe vegetative and floral characters of Leguminosae family.
- 4 a) Describe the taxonomy of Solanaceae family.
b) Describe vegetative and floral characters of Rubiaceae family.
- 5 Describe photosynthesis in plants.
- 6 a) What is hybridization and explain?
b) Describe about transpiration.
- 7 a) Give difference between animal cell and plant cell.
b) Explain the digestive system of frog with neat labeled diagram.
- 8 a) Give details of histology of rabbit liver.
b) Describe various types of animal tissues.
- 9 Describe the life history of Entamoeba with neat labeled diagram.
- 10 Describe morphology and life history of mosquitoes.

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B. Pharmacy II - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Human Anatomy and Physiology - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions. All questions carry equal marks. (4 x 17^{1/2} = 70 Marks)

- 1 Write in detail about the physiology of respiration.
- 2 a) Write about the structure and functions of neuron with a labeled diagram.
b) Define Neurotransmission and explain the process of neurotransmission.
- 3 a) Explain the structure and functions of small intestine with a neat labeled diagram.
b) Explain the structure and functions of liver.
- 4 a) Explain the biosynthesis of thyroid hormones.
b) Write short note on gonads.
- 5 Explain the different parts and functions of brain.
- 6 Write in detail about the physiology of urine formation and add a note on micturition.
- 7 a) What is reflex arc? Explain the components of reflex arc.
b) Explain the structure and functions of parasympathetic system.
- 8 What is alveolar Ventilation? Explain the different types mechanisms involved in the regulation of respiration.
- 9 What are cranial nerves? And explain different types of cranial nerves in detail.
- 10 Explain about the anatomy and physiology of Adrenal gland.

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B. Pharmacy 2/4 II-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject : Pharmacognosy – I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17^{1/2} = 70 Marks)

- 1 (a) Describe the effect of exogenous and endogenous factors affect the cultivation of medicinal plants.
(b) List the plant hormones and discuss about Auxins.
- 2 (a) With suitable examples discuss the effect of season, time of collection and age of the plant on quality of medicinal plants cultivation.
(b) Give an informative note on good storage practices.
- 3 What are metabolic pathways? Explain in detail about Shikimic acid pathway.
- 4 (a) Describe the Isoprenoid biosynthesis and its importance.
(b) Write a note on precursor product sequence.
- 5 Write about:
(i) Drug deterioration by non-living factors (ii) Quantitative microscopic analysis
- 6 Write about:
(i) Lycopodium spore method (ii) Leaf constants (iii) Organoleptic evaluation
- 7 (a) What are fixed oil and fats? Write the chemical properties.
(b) Give biological source, chemistry and uses of:
(i) Castor oil (ii) Arjuna (iii) Agar-Agar
- 8 (a) Define and classify the tannins. Give the color reaction and pharmaceutical importance of tannins.
(d) Write the biological sources, chemistry and uses of
(i) Isabgol (ii) Linseed (iii) Black catechu
- 9 (a) What are plant fibers and give the pharmaceutical importance?
(b) What are proteins and classify? Give the source, pharmaceutical significance and method of preparation of any two proteins.
- 10 Write the biological source, chemistry method of preparation and pharmaceutical importance of
(i) Honey (ii) Cantherides (iii) Silk (iv) Cotton

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B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Biostatistics (Pharmacostatistics)

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17^{1/2}=70 Marks)

1. (a) Explain about Histogram and Ogive curves.
(b) Explain about Correlation and Regression.
(c) Explain about classical definition of Probability.
2. (a) Find out the arithmetic average, standard deviation, coefficient of variation from the following data:

Class Interval	Frequency	Class Interval	Frequency
0-5	5	20-25	12
5-10	8	25-30	7
10-15	10	30-35	4
15-20	15	35-40	3

- (b) Explain about measures of dispersion.
3. (a) Explain about Poisson distribution with two examples.
(b) Explain about Addition and Multiplication theorems of probability.
4. (a) Define normal distribution and state its properties.
(b) Find the probability of having 53 Sundays in a leap year.
5. (a) Explain about 2D and 3D diagrams.
(b) Explain about Sampling errors.
(c) Explain Sampling Distributions.
6. (a) Random Sampling Methods.
(b) Cluster Sampling.
7. (a) Define Point estimation and interval estimation.
(b) Explain steps which are involved in testing of Hypothesis.
8. (a) Explain about t-test and paired t-test.
(b) Bayesian estimation.
9. (a) Explain about analysis of variance one way classification.
(b) Explain Chi-Square test of goodness of fit.
10. (a) Explain about basic principles of Design of Experiments.
(b) Explain about Randomised Block Design.

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B. Pharmacy IV- Semester (PCI) (Backlog) Examination, March 2021

Subject: Pharmacognosy & Phytochemistry - I

Time: 2 Hours

Max. Marks: 75

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

PART – A (7 X 3 = 21)

1. Differentiate organized and unorganized drugs.
2. What is organoleptic evcaution? Give examples.
3. What are uses of plant hormones? Give examples.
4. How do you test the germinating ability of seeds?
5. Write the uses of Flavonoids.
6. Write tests to differentiate cotton, jute.
7. Explain enfleurage.
8. Write source and uses of bromolein.
9. Write industrial applications of castor oil.
10. Write principles of ayurvedic system of medicine.

PART – B (1 x 14 = 14)

11. Discuss the development of pharmacognosy giving the historical background. What is the scope of pharmacognosy in providing new drugs?
12. Discuss the advantages and disadvantages of obtaining the crude drugs from cultivated and wild plants.
13. Write in detail applications of plant tissue culture.

PART - C (5 x 8 = 40)

14. Explain the principles of Homeopathy.
15. Write a note on Lycopodium Spore method.
16. Elaborate the applications of plant growth hormones in the cultivation of medicinal plants.
17. Write biological source, active constituents and uses of (i) Honey (ii) Chaulmoogra Oil.
18. Write about Edible vaccines.
19. How do waxes differ from fats? Write a pharmacognostic note on Bees wax.
20. Write the definition, properties and identification tests for Tannins.
21. Discuss different types of cultures in Plant Tissue Culture.
22. Write a note on marine biologicals as a source for novel drugs.

FACULTY OF PHARMACY**B. Pharmacy I-Year (Non-CBCS)(Backlog) Examination, March 2021****Subject : Basic Computer Applications**

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.**(4 x 17^{1/2} = 70 Marks)**

- 1 (a) Write a note on Input and Output devices used for computer. Explain input devices.
(b) Write about basic structure and characteristics of computers.
- 2 (a) Write about types of printers?
(b) What are computer viruses? How can we protect the computers from viruses?
(c) What is operating system? Explain briefly on Windows OS.
- 3 Explain with examples:
(i) Arithmetic operators
(ii) Expressions
(iii) Input and Output statements
(iv) Arrays
- 4 Explain control statements with examples: (i) If- Else (ii) For (iii) Goto
- 5 (a) Write the features and uses of MS-Word.
(b) Write about :
(i) Formatting paragraphs
(ii) Mail merge in MS-Word.
- 6 Explain:
(i) Data types
(ii) Mathematical and statistical functions
(iii) Charts and Graphs in MS- Excel
- 7 Write a note on:
(i) Different views
(ii) Templates
(iii) Slide design
(iv) Transitions and animations in MS- Power point.
- 8 (a) What is database? Write about features of MS-Access.
(b) Write a note on:
(i) Queries
(ii) Forms
(iii) Importing and Exporting
- 9 Write a note on:
(i) Structure and organization of WWW
(ii) Search engines
(iii) Browsers
(iv) HTML
(v) E-Mail
- 10 (a) What is SQL? Write about SQL commands with examples.
(b) Write comparisons for Access and SQL Server

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B. Pharmacy II - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Basic Computer Applications - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17^{1/2}=70 Marks)

1. (a) Explain the structure of 'C' program.
(b) Describe the concept of type conversion.
2. (a) Explain the concept of storage classes.
(b) Write the process of writing and executing 'C' program.
3. (a) Explain about Logical operator and Conditional operator.
(b) Write difference between break and continue statements.
4. What is an array? Explain different types of arrays with examples.
5. Explain about database development life cycle (DDLC).
6. (a) Explain the characteristics of DBMS.
(b) Write about the traditional file based system.
7. Explain DDL commands with structure and examples.
8. Explain the constraints in SQL.
9. (a) What is the heterogeneous storage? Explain in detail.
(b) Explain the concept of chemsketch.
10. Explain in detail about chemical database design and their tools.

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B. Pharmacy 2/4 II-Semester (Non-CBCS) (Backlog) Examination, March 2021

Subject : Environmental Studies

Time: 2 Hours

Max. Marks: 70

Note: Answer any Four Questions

(4 x 17^{1/2} = 70 Marks)

- 1) Write Short Note on:
 - a) Environmental Impact Assessment
 - b) Municipal solid waste rules
- 2
 - a) Wild life protection Act
 - b) Water (prevention and control of Pollution) Act
- 3 Write detail note on
 - a) Control measures for industrial waste
 - b) Explain relevance of biotechnology in sustainable development
- 4
 - a) Sanitation and public health
 - b) Climate change
- 5 Write a note on odour pollution and its control
- 6 Write a note on soil acidification and soil contamination
- 7
 - a) Write a detailed essay on biodiversity, its types functions and its distribution with classical examples.
 - b) "Protection of Environment and sustainable development" – Explain.
- 8 Write detailed information on the following
 - i) Conservation of Natural Resources
 - ii) Concepts and functions of Ecosystem
- 9 Write in detail about renewable and non-renewable energy resources
- 10 Give functions of forest resources. Explain the uses of forest and how we are over – exploiting the forest resources.
