

Code No: E-12166/NON-CBCS

FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (NON-CBCS) (Backlog) Examination,

April / May 2023

Subject: Physical Pharmacy-I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. (a) Explain kinetic molecular theory.
(b) Explain the various methods of achieving liquefaction of gases.
2. (a) Explain the phenol-water system.
(b) Explain DSC and DTA with applications. Write the importance of thermal analysis.
3. State and explain first and second law of thermodynamics with applications.
4. (a) Derive an expression to determine efficiency of steam engine.
(b) Write a note on **i)** Heat of formation and combustion **ii)** Enthalpy and Entropy
iii) Free Energy functions and applications
5. (a) What are ideal solutions and real solution? Explain derivations of Raoult's law.
(b) Explain colligative properties of solutions of nonelectrolytes.
6. (a) Explain Sorenson's pH scale.
(b) Derive an equation for finding the hydrogen ion concentration in ionization of weak acids.
7. (a) Explain different methods for adjusting isotonicity.
(b) Write a brief note on **i)** pH indicators **ii)** Physiological buffer
8. (a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt.
(b) Write is isotonic, hypertonic and hypotonic solutions? Explain its importance
9. (a) Write a note on different types of electrodes. Explain Hydrogen and Glass electrodes.
(b) How do you measure EMF of a cell?
10. (a) Write applications of Oxidation-Reduction Potentials (Redox potentials) in pharmacy.
(b) Draw and explain Daniel cell.

FACULTY OF PHARMACY

**B. Pharmacy (NON-CBCS) 3/4-Year I-Semester (Backlog) Examination,
April 2023**

Subject: Pharmaceutical Technology (Pharmaceutics-II)

Time: 3 Hours

Max.Marks:70

Note: Answer any five questions. All questions carry equal marks.(5 x 14 = 70 Marks)

1. Write a note on the following excipients with examples
(i) Antioxidants (ii) Preservatives (iii) Organoleptic additives (iv) Thickening agents
2. (a) Write the preparation of gelatin.
(b) Write about the formulation, filling and sealing of Hard gelatin capsules.
3. (a) Differentiate the flocculated and deflocculated suspensions.
(b) Explain the formulation and evaluation of suspensions.
4. (a) Classify emulsifying agents with example.
(b) Write briefly on theories of emulsification.
(c) Write a note on concept of multiple emulsions.
5. (a) Write the different types of tablets.
(b) Write wet granulation method for manufacturing of tablets and quality control tests for the tables.
6. (a) What are the reasons for tablets coating? Explain the steps involved in sugar coating technique.
(b) Write a note on processing problems in compression of tablets.
7. (a) Write formulation, production facilities for preparation of parenteral products.
(b) Explain in detail quality control tests for parenterals.
8. (a) Explain formulation, manufacture and labelling requirements for eye drops and eye ointments.
(b) Write about various types of containers used for parenteral products.
9. What are aerosols? Explain the formulation components, filling techniques and containers used in the manufacture of aerosols.
10. Write the ideal properties of packing materials. Write a note on glass, plastic and metal as packing materials.

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FACULTY OF PHARMACY

B. Pharmacy (NON-CBCS) 3/4 I Semester (Backlog) Examination, April 2023

Subject: Medicinal Chemistry-I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions. All questions carry equal marks.(5 x 14 = 70 Marks)

1. Mention the physicochemical factors which affect the drug action. Explain how partition coefficient, hydrogen bonding affects the drug action with examples.
2. Describe in detail about phase-I drug metabolism.
3. (a) Define and classify sympathomimetics and write a note on acetylcholine esterase inhibitors.
(b) Write the structure, synthesis, mode of action of a) Physostigmine, b) Atenolol
4. (a) Write a note on skeletal muscle relaxants.
(b) Write the structure, synthesis and mode of action of
(i) Carbachol (ii) Pyridinium bromide
5. (a) Write a note on anti-platelet drugs.
(b) Define and classify antihypertensive agents, write their SAR and synthesis of Clonidine.
6. Discuss SAR, mechanism of action and uses of cardiac glycosides.
7. (a) Define hypoglycemics and classify them with suitable examples. Write the SAR.
(b) Write the structure, synthesis and uses of i) Propylthio uracil, ii) Tolbutamide
8. Write the structure, IUPAC name, Mechanism of action and uses of the following
(a) Verapamil (b) Acetazolamide (c) Azathioprine (d) Glyclazide
9. (a) Classify antihistamines with examples. Explain the SAR of H₁ antihistamines.
(b) Write the synthesis of Clofibrate and Amrinone
9. Write the structure, IUPAC name, Mechanism of action and uses of the following
(a) Ticlopidine (b) Dipyridamole (c) Furosemide (d) Meprobamate
10. (a) Discuss about proton pump inhibitors and write the synthesis of Nifedipine
(b) Write the synthesis and MOA of Chlorpheniramine and Levamisole.

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FACULTY OF PHARMACY

B. Pharmacy 3/4 I Semester (NON-CBCS) (Backlog) Examination, May 2023

Subject: Pharmacognosy - II

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. (a) Define alkaloids. Write the classification, general tests and isolation methods of alkaloids
(b) Write the source, chemistry and therapeutic uses of Cinchona and Vinca.
2. (a) Write the Biological sources microscopical features and uses of
i) Nuxvomica ii) Rauwolfia iii) Kurchi
(b) Write the specific chemical tests for detection of
i) Indole alkaloids ii) Tropane alkaloids
3. (a) Define and classify glycosides with suitable examples
(b) Describe the pharmacognostic study of Digitalis
4. (a) Write the sources, chemistry, therapeutic uses and tests of Anthraquinone glycosides
(b) Write the pharmacognostic description of Liquorice
5. (a) Write the isolation and estimation of tannic acid from myrobalan
(b) Write the biological source, chemical nature and uses of
i) Turmeric ii) Taxus
6. (a) Discuss the general methods of extraction of volatile oils
(b) Write a brief note on chemical constituents, identification tests and uses of capsicum and Artemesia
7. (a) Discuss about nutritional requirements of an ideal plant tissue culture medium.
(b) What are callus and cell suspension cultures, give the characteristics of suspension Culture
8. (a) Write a note on sterilization of explants.
(b) Write about immobilization and its application in plant tissue culture
9. (a) Write a note on microscopic evaluation of crude drugs
(b) Give the preparation of asavas and Ghritams
10. (a) Give a note on discovery of new drugs from natural source
(b) Write a note on different types of herbal formulations

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FACULTY OF PHARMACY

**B. Pharmacy 3/4 I - Semester (NON-CBCS) (Backlog) Examination,
September 2022**

Subject: Physical Pharmacy - I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. a) Write and explain the postulates of the kinetic molecular theory.
b) Write the methods of achieving liquefaction of gases.
2. a) What is phase rule? Explain the phase diagram for two component systems.
b) Write a note on i) Polymorphism ii) Refractive Index **(OR)**
iii) Differential Scanning Calorimetry
3. State and explain first and second law of thermodynamics with applications.
4. a) Define and explain Hess's law of heat summation and its application.
b) Derive an expression to determine efficiency of steam engine.
5. a) What are colligative properties? Explain suitable colligative properties for molecular weight determination.
b) Explain Sorenson's pH scale.
6. a) Discuss the modern theory of strong electrolytes and Debye- Huckel theory.
b) Explain Arrhenius theory of electrolytic dissociation.
7. a) Define buffer. Derive buffer equation for weak acids.
b) What are the methods for adjustment of tonicity & pH. Explain freezing point depression method for adjusting isotonicity.
8. a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt.
b) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and its applications.
9. a) Write about different types of electrodes. Explain Hydrogen (or) Glass electrodes.
b) How to measure the EMF of cells.
10. Write a note on i) Catalysis and Catalyst ii) Promoters and Inhibitors
iii) Applications of Redox potentials in pharmacy

FACULTY OF PHARMACY

**B. Pharmacy III Year I Semester (NON-CBCS) (Backlog) Examination,
August 2022**

Subject: Pharmaceutical Technology- I (Pharmaceutics - II)

Time: 3 Hours

Max. Marks: 70

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

- 1) Explain the following excipients with examples
i) Surfactants ii) Thickening agents iii) Preservatives iv) Organoleptic additives
- 2) a) Explain the preparation of gelatin.
b) Explain the sizes, formulation, filling and sealing of Hard gelatin capsules.
- 3) a) Differentiate the flocculated and deflocculated suspensions.
b) Explain the formulation and evaluation of suspensions.
- 4) a) Define Emulsion. Classify emulsifying agents with examples.
b) Write a note on identification tests for emulsion.
- 5) a) Write a note on excipients used in the formulation of tablets.
b) Write a note on wet granulation method.
- 6) a) Write the reasons for coating the tablets. Explain the steps involved in sugar coating technique.
b) Write a note on film coating defects.
- 7) a) Write formulation, production facilities for preparation of parenteral products.
b) Explain in detail quality control tests for parenterals.
- 8) a) Explain formulation, manufacture and labelling requirements for eye drops.
b) Write about various types of containers used for parenteral products.
- 9) What are aerosols? Explain the formulation components, filling techniques and containers used in the manufacture of aerosols.
- 10) a) Write the ideal properties of packaging materials.
b) Write a note on following packaging materials i) Glass ii) Plastic

FACULTY OF PHARMACY

B. Pharmacy 3/4 I Semester (NON-CBCS) (Backlog) Examination, August 2022

Subject: Medicinal Chemistry - I

Time: 3 Hours

Max. Marks: 70

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

1. Mention the physicochemical factors which affects the drug action. Explain how partition coefficient, hydrogen bonding affects the drug action with examples.
2. a) Explain in detail the concept of i) Chelation, ii) Protein binding, iii) Redox potential
b) Describe in detail about phase-I metabolism.
3. (a) Define and classify sympathomimetics and write a note on acetylcholine esterase inhibitors.
(b) Write the structure, synthesis, mode of action of a) Salbutamol, b) Atenolol
4. (a) Define and classify parasympathomimetics
(b) Write a note on ganglionic blocking agents and outline the synthesis of Mecamylamine HCl.
5. (a) Define antihyperlipedemics, write their classification, SAR and mechanism of action.
(b) Write a note on Cardiotonic agents.
6. (a) Define and classify cardiovascular drugs and write the SAR of antiarrhythmic agents
(b) Write the structure, synthesis, mode of action of a) Nifedipine, b) Captopril
7. (a) Discuss briefly about positive inotropic agents..
(b) Classify diuretics and write the SAR and synthesis of a) Amiloride, b) Amrinone
8. Discuss SAR, mechanism of action and uses of cardiac glycosides.
9. (a) Define antihistamines, explain SAR of H₁ & H₂ blockers
(b) Outline the synthesis of a) Chlorpheniramine, b) Ranitidine.
10. a) Discuss about proton pump inhibitors and write the synthesis of Omeprazole
b) Discuss about anticoagulants and write the structure, IUPAC name of Warfarin.

FACULTY OF PHARMACY

**B. Pharmacy 3/4 I - Semester (NON-CBCS) (Backlog) Examination,
September 2022**

Subject: Pharmacognosy – II

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

1. (a) Give the identification tests and adulterants of the following
(i) Nuxvomica (ii) Ephedra
(b) Define alkaloids. Write the classification, general tests and isolation methods of alkaloids.
2. (a) Write the source, chemical structures of active constituents and uses of
i) Belladonna ii) Rauwolfia
(b) Write the systematic pharmacognostic study of Opium?
3. (a) Write the sources, chemistry, therapeutic uses and tests of Anthraquinone glycosides.
(b) Write the pharmacognostic study of Digitalis
4. (a) Give classification of Glycosides based on their glycosidic linkage with examples.
(b) Write a brief note on Indian Ginseng and Gymnema.
5. (a) Discuss the general methods of extraction of volatile oils
(b) Write a note on Isolation of Tannic acid from myrobalan
6. (a) Write the biological source, chemical constituents and uses of
i) Guggul ii) Clove iii) Asafoetida
(b) Describe the estimation of sennosides from senna.
7. (a) Write the applications of plant tissue culture with suitable examples
(b) Write about i) Embryogenesis ii) Clonal propagation
8. (a) Write a brief note on significance and application of Immobilization culture techniques.
(b) Discuss the application of plant tissue culture in production of secondary metabolites.
9. (a) Write about the status and practice of herbal medicine in India.
(b) Give the preparation of Aristavas and Ghritams.
10. (a) Write a note on quality control and standardization of raw materials used in herbal medicines.
(b) Give a note on discovery of new drugs from natural source.

FACULTY OF PHARMACY

**B. Pharmacy III Year I - Semester (NON-CBCS) (Backlog) Examination,
September 2022**

Subject: Pharmacology - I

Time: 3 Hours

Max.Marks:70

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

1. a) Explain the terms i) Synergism ii) Tolerance iii) Tachyphylaxis
b) Discuss various routes of drug administration
2. a) Classify receptors and explain in detail about G protein coupled receptor
b) Define drug absorption and explain various factors affecting drug absorption
3. Classify para-sympathomimetics and write in detail the pharmacology of acetylcholine?
4. Classify adrenergic antagonist drugs and write the pharmacology of propranolol
5. Classify anti-epileptic drugs? Write MOA, Adverse effects and therapeutic uses of sodium valproate and phenytoin?
6. Classify antidepressants? Write MOA, Adverse effects and therapeutic uses of Tricyclic antidepressants and SSRIs?
7. Classify antihypertensive drugs? Write in details about calcium channel blockers and β - blockers?
8. Classify antiarrhythmic drugs? Explain the MOA, Adverse effects and therapeutic uses of two classes of drugs
9. Classify diuretics? Explain in detail the MOA and therapeutic uses of K^+ sparing diuretics and thiazide diuretics?
10. a) Classify anti-ulcer drugs? Explain in detail about proton pump inhibitors
b) Classify anti emetic drugs? Explain in details about 5HT₃ antagonists?

FACULTY OF PHARMACY
B. Pharmacy 3/4 I –Semester (NON- CBCS) (Backlog) Examination,
February / March 2022

Subject: Medicinal Chemistry- I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. Discuss in detail about following terms with examples
(a) Bio isosterism, (b) Partition coefficient,
(c) Hydrogen bonding, (d) Pro drug approach
2. (a) Discuss in detail the conjugation reactions involved in the drug metabolism.
(b) Write about the factors affecting drug metabolism.
3. (a) Classify anti-cholinergic drugs with examples and discuss the SAR of Muscarinic agonists.
(b) Write mechanism of action, synthesis and IUPAC name of
a) Prazocin, b) Physostigmine
4. (a) Write a note on skeletal muscle relaxants.
(b) Write the structure, synthesis and mode of action of
a) Carbachol and b) Pyridinium bromide.
5. (a) Write a note on anti platelet drugs.
(b) Define and classify antihypertensive agents, write their SAR and synthesis of Clonidine.
6. (a) Classify antihyperlipedemics agents with examples and give the synthesis of Atorvastatin.
(b) Write the structure, synthesis and mode of action of the following drugs.
(i) Verapamil (ii) Clonidine, (iii) Diltiazem
7. (a) Define hypoglycemics and classify them with suitable examples. Write the SAR.
(b) Write the structure, synthesis and uses of a) Propylthio uracil, b) Tolbutamide
8. (a) Write a note on thyroid. and antithyroid agents
(b) Write in detail about immunosuppressants and immunomodulators.
9. (a) Classify antihistamines, write the SAR of H₂ receptor antagonists.
(b) Write the structure and outline the synthesis of following
(i) Diphenhydramine (ii) Cetirizine
10. Write a note on
(a) Proton pump inhibitors (b) Coagulants

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FACULTY OF PHARMACY

**B. Pharmacy III Year I – Semester (NON- CBCS) (Backlog) Examination,
February / March 2022**

Subject: Pharmacology-I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. (a) Explain the terms i) Agonist ii) Antagonist iii) Biological half life
(b) Discuss various factors affecting drug action.
2. (a) Classify receptors and explain in detail about JAK STAT kinase receptor
(b) Discuss the Merits and Demerits of oral and parenteral route of drug Administration.
3. Classify sympathomimetics and write in detail the pharmacology of adrenaline
4. Classify cholinergic antagonist drugs and write the pharmacology actions of atropine
5. Classify anti-parkinsonism drugs? Write MOA, Adverse effects and therapeutic uses of COMT inhibitors and MOA-B inhibitors
6. Classify antidepressants? Write MOA, Adverse effects and therapeutic uses of Tricyclic antidepressants and SSRIs
7. Classify antianginal drugs? Write in details about any two class of drugs
8. Classify antihypertensive drugs? Explain the MOA, Adverse effects and therapeutic uses of ($\alpha+\beta$) blockers, β blockers and calcium channel blockers
9. Classify diuretics? Explain in detail the MOA and therapeutic uses of Loop diuretics and thiazide diuretics?
10. (a) Explain in detail about purgatives and laxatives
(b) Classify antiemetic drugs? Explain in details about 5HT₃ antagonists

FACULTY OF PHARMACY

**B. Pharmacy 3/4 I Semester (NON-CBCS) (Backlog) Examination,
February 2022**

Subject: Physical Pharmacy - I

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

- 1 (a) Write and explain the postulates of the kinetic molecular theory.
(b) Explain the methods for achieving liquefaction of gases.
- 2 (a) What is phase rule? Explain two component system.
(b) Explain the following (i) DSC and DTA (ii) Refractive Index.
- 3 (a) Define (i) Specific heat & Latent heat (ii) Enthalpy (iii) Entropy.
(b) State and explain first law of thermodynamics.
(c) Explain Hess law of heat of summation and its application.
- 4 (a) Derive an expression to determine efficiency of steam engine.
(b) Explain Gibbs free energy and applications.
- 5 (a) Explain modern theory of strong electrolytes and Debye-Huckel theory.
(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.
- 7 (a) Explain different methods for adjusting isotonicity and pH of solutions.
(b) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt.
- 8 (a) Write a note on pharmaceutical buffers and their applications.
(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) Write the procedure for the measurement of EMF of cells.
- 10 (a) Write applications of Oxidation-Reduction Potentials (Redox potentials) in pharmacy.
(b) Write a note on:
(i) Catalyst (ii) Catalysis (iii) Oxidation reduction electrodes.

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FACULTY OF PHARMACY
B. Pharmacy III Year I –Semester (NON-CBCS) (Backlog) Examination,
February/March 2022
Subject: Pharmaceutical Technology (Pharmaceutics-II)

Time: 3 Hours

Max. Marks: 70

Note: Answer any five questions.

(5 x 14 = 70 Marks)

1. (a) Write about following excipients with examples
i) Antioxidants ii) Preservatives iii) Surfactants iv) Hydrocolloids
2. (a) Write the manufacturing of hard gelatin capsules.
(b) Write the manufacturing and quality control tests for soft gelatin capsules.
3. (a) Write the differences between Flocculated and Deflocculated suspensions.
(b) Write the formulation and evaluation of suspensions.
4. (a) Write briefly on formulation and evaluation of emulsions.
(b) Write a brief note on multiple emulsions.
5. (a) Write the advantages of tablets.
(b) Explain different methods used for manufacturing of tablets.
(c) Write the processing problems in manufacturing of tablets.
6. (a) What is coating? What are the different types of coatings available for tablets?
Write the steps involved in sugar coating.
(b) Explain defects of coating.
7. (a) Explain the production procedures, facilities, formulation of parenterals.
(b) Write the various evaluation tests for parenterals.
8. (a) Write the requirements, formulation, containers for eye drops and eye ointments.
(b) Write the instructions to be printed on the ophthalmic products container.
9. (a) Write in detail on formulation, containers and filling techniques used in the manufacture of aerosols.
(b) Write the quality control and evaluation tests for pharmaceutical aerosols.
10. (a) Explain the glass and plastic as pharmaceutical packaging materials and their Influence on dosage forms.
(b) Write the various quality control tests for glass.

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FACULTY OF PHARMACY

**B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination,
September 2021**

Subject: Pharmaceutical Technology (Pharmaceutics-II)

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

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

- 1 (a) Explain the properties and selection of antioxidants and hydrocolloids for pharmaceutical formulations?
(b) Classify preservatives? Write a note on any two used in pharmaceutical formulations?
- 2 (a) Describe any two filling methods of soft gelatin capsules?
(b) Describe preparation of empty gelatin capsules?
- 3 (a) Define suspensions? How will you formulate a suspension? What are the factors affecting formulation of a suspension?
(b) Discuss in brief the two methods to manufacture suspensions?
- 4 (a) Define Emulsion? How will you evaluate shelf life of an emulsion?
(b) Describe any 4 evaluation methods of an emulsion?
- 5 (a) Classify various types of coating? What are reasons for coating a pharmaceutical formulations?
(b) Explain sugar coating defects?
- 6 (a) Classify different types of tablets? Mention the components of chewable tablet?
(b) What are various problems encountered during compression of a tablet?
- 7 (a) Classify parenterals? What do you mean by BFS (Blow fill seal) and FFS (form fill seal) technology?
(b) Explain evaluation tests for sterile powders?
- 8 (a) Explain methods of manufacture of eye preparations? What are the labelling instructions required for ophthalmic preparations as per D&C act?
(b) Write a note on parenteral emulsion?
- 9 (a) What are the fluorinated propellants of aerosols? Mention the advantages and disadvantages?
(b) Explain formulation of aerosols?
- 10 (a) Explain metal as a pharmaceutical packaging system? What are the quality control tests performed for metal containers?
(b) Write a note on incompatibility of drugs and plastic containers with examples?

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FACULTY OF PHARMACY

**B. Pharmacy 3/4 I-Semester (Non-CBCS)(Backlog) Examination,
September 2021**

Subject: Pharmacology – I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

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

- 1 Write in detail about various biotransformation reactions with examples.
- 2 Explain in detail about the advantages and disadvantages of different routes of drug administration.
- 3 (a) Write the pharmacological effects of acetyl choline.
(b) Explain the various therapeutic uses and adverse reactions of (α) – adrenergic blockers.
- 4 Explain the pharmacological actions and therapeutic uses of the following:
 - (i) Acetylcholinesterase Inhibitors
 - (ii) β – Adrenergic blockers
- 5 Classify anti-epileptic agents and explain the mechanism of action, adverse reactions and therapeutic uses of any two classes of drugs
- 6 Write the classification of Non-steroidal anti-inflammatory agents and explain the details of any two classes of drugs.
- 7 Define hypertension. Classify the anti-hypertensives with examples. Write about the mechanism of action and adverse reactions of any one class of drugs.
- 8 Write short notes on:
 - (i) Antitussives
 - (ii) Anti-anginal agents
- 9 Classify the agents used in treatment of peptic ulcer disease. Write about the pharmacological actions and therapeutic uses of Ranitidine and Omeprazole.
- 10 Write about the following:
 - (i) Pharmacology of Purgatives
 - (ii) Anti – emetic agents

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FACULTY OF PHARMACY

**B. Pharmacy 3/4 I Semester (Non-CBCS) (Backlog) Examination,
September 2021**

Subject: Physical Pharmacy - I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ¹/₂ = 70 Marks)

- 1 (a) Write and explain the postulates of the kinetic molecular theory.
(b) Explain the methods for achieving liquefaction of gases.
- 2 (a) What is phase rule? Explain phase diagram for two component system.
(b) Explain the following (i) DSC and DTA (ii) Polymorphism.
- 3 (a) State and explain first law and second law of thermodynamics.
(b) Explain Hess law of heat of summation and its application.
- 4 (a) Derive an expression to determine efficiency of steam engine.
(b) Explain Gibbs free energy and applications.
- 5 (a) Explain modern theory of strong electrolytes and Debye-Huckel theory.
(b) Explain suitable colligative property for determination of molecular weight of non electrolyte.
- 6 (a) Explain Arrhenius theory of electrolytic dissociation.
(b) Write a note on Sorenson's pH scale.
(c) Derive the equation for determination of acidity and basicity constant with use.
- 7 (a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt.
(b) Explain different methods for adjusting isotonicity and pH of solutions.
- 8 (a) Write a note on pharmaceutical buffers and their applications.
(b) Write Van Slyke's equation for buffer capacity.
(c) Write the influence of buffer capacity and pH o tissue irritation.
- 9 (a) Explain (i) Hydrogen electrode (ii) Oxidation –Reduction Electrode.
(b) How to measure the EMF of cells.
- 10 (a) Write a note on (i) Oxidation-Reduction Potentials (Redox potentials) in pharmacy
(ii) Catalysis and Catalyst (iii) Promoters and inhibitors for catalytic reaction.
(b) Draw and explain Daniel cell.

FACULTY OF PHARMACY

**B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination,
September 2021**

Subject: Pharmacognosy - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

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

- 1 (a) Give the identification tests and adulterants of the following
(i) NUX Vomica (ii) Ephedra
(b) Explain the Pharmacognostic study of Datura.
- 2 Describe 'Vasaka' under a suitable Pharmacognostic scheme.
- 3 (a) Give classification of Glycosides based on their glycosidic linkage with examples.
(b) Write a Pharmacognostic report on Indian Senna.
- 4 (a) Mention any two bitter glycosides containing crude drugs and give biological source, chemical constituents and uses of them.
(b) Write a note on gymnema.
- 5 (a) Write a note on chemistry, tests, characterization and Estimation of sennosides from Senna,
(b) Write a note on chemical nature and uses of clove and podopyllum.
- 6 (a) Write a brief note on chemical constituents, identification tests and uses of capsicum and Turmeric.
(b) Write a note on Isolation of Quinine from Cinchona and Tannic acid from myrobalan.
- 7 (a) Describe briefly the equipments and materials required in tissue culture.
(b) What are callus and cell suspension cultures, give the characteristics of suspension culture.
- 8 (a) Write a brief note on single cell culture and embryo culture.
(b) Write a brief note on significance and application of Immobilization culture techniques.
- 9 Mention the different solvents used in the preparation of Ayurvedic formulations and describe the method of preparation of Asavas and Bhasmas.
- 10 What are Arishtas and Asavas? Write the preparation and standardization of Arishtas and Asavas.

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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) Cetirizine 3) Diphenhydramine. Write a note on anticoagulants.

FACULTY OF PHARMACY

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

Subject: Pharmacology – I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

- 1 What are different routes of drug administration? Compare the merits and demerits of oral and parenteral routes of administration.
- 2 Define and classify the receptors. Explain in detail about G-protein coupled Receptors.
- 3 Explain the pharmacological effects and therapeutic uses of:
 - (i) Physostigmine
 - (ii) Acetylcholine
- 4 Classify the adrenergic agents with examples. Write their pharmacological actions and therapeutic uses.
- 5 Write about the classification of Sedative and hypnotics. Write in detail about the mechanism of action, therapeutic uses and adverse reactions of any two drugs.
- 6 Classify anti-psychotic agents and explain the mechanism of action and therapeutic uses of chlorpromazine and haloperidol.
- 7 Define hyperlipidemia. Classify the anti-hyperlipidemic agents with examples. Write about the mechanism of action and adverse reactions of HMG CoA reductase inhibitors.
- 8 What is bronchial asthma? Classify anti-asthmatic drugs. Explain the pharmacology of any two drugs.
- 9 Define Diuresis. Classify Diuretics and explain mechanism of action and therapeutic uses of potassium sparing diuretics and carbonic anhydrase inhibitors.
- 10 (a) Write about the mechanism of action and adverse reactions of ranitidine.
(b) Write short note on:
 - (i) Anti-diarrhoeals
 - (ii) pH modifying agents

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 3/4 I-Semester (Non-CBCS)(Backlog) Examination, March 2021

Subject : Pharmaceutical Technology (Pharmaceutics-II)

Time : 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

- 1 (a) Explain the properties and selection of diluents for pharmaceutical formulations?
(b) Classify surfactants? Write a note on toxicity of surfactants?
- 2 (a) Describe any two filling methods of hard gelatin capsules?
(b) Describe evaluation tests for soft gelatin capsule?
- 3 (a) What are suspensions? Mention the excipients used for the preparation of flocculated and deflocculated suspensions? Explain influence of particle size upon formulation of suspensions?
(b) Discuss in brief the methods to manufacture suspensions?
- 4 (a) Define emulsion? Explain stability of emulsions?
(b) What are the different methods of manufacturing for the preparation of emulsions? Add a note on colloidal mill?
- 5 (a) What are the different types of granulation methods? How starch is used as granulating agent? Explain mechanism of granule formation?
(b) Describe various disintegrates used in the formulation of tablets and its properties?
- 6 (a) What are the advantages of coating? Explain fluidized bed coating process?
(b) Describe any two advanced coating techniques used in industry?
- 7 (a) What do you mean by large volume and small volume parenterals? What are the advantages and disadvantages of parenteral preparations?
(b) Explain sterile production facilities required for the manufacture of small volume parenterals?
- 8 (a) Explain evaluation methods of eye ointments? What are the labelling instructions required for ophthalmic preparations under D&C act?
(b) Write a note on Total parenteral nutrition (TPN)?
- 9 (a) What are different types of aerosols? Mention the advantages and disadvantages?
(b) Describe hydrocarbon propellants used in aerosols? Add a note on pharmaceutical applications of aerosols?
- 10 (a) Explain glass as a pharmaceutical packaging system? What are the quality control tests performed for plastic containers?
(b) What are the incompatibilities observed between preservatives and glass containers?

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FACULTY OF PHARMACY

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

Subject : Pharmacognosy - II

Time : 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4 x 17 ½ = 70 Marks)

- 1 (a) Write the sources of tropane alkaloids.
(b) Explain the Pharmacognostic study of Rauwolfia.
- 2 (a) Explain systematic Pharmacognostic study on cinchona.
- 3 (a) Mention a anthracene-glycoside and discuss the test for its identification.
(b) Explain the Pharmacognostic study of Digitalis.
- 4 (a) Write the cultivation, collection and storage of senna.
(b) Write a note on Aloe.
- 5 (a) Define "Volatile oils" and explain various methods for the extraction of volatile oils.
(b) Write a brief note on chemical constituents, identification tests and uses of Artemisia and Taxus.
- 6 (a) Write a note on chemical nature and uses of Fennel and Cinnamon.
(b) Write a note on Isolation of Sennosides from senna and caffeine from tea.
- 7 (a) Discuss about historical development of plant tissue culture.
(b) Discuss various applications of plant tissue culture with examples.
- 8 (a) Discuss the applications of plant tissue culture technique in the production of biomedicinals.
(b) Write a brief note on Immobilization of culture.
- 9 (a) Write the method for the preparation of the following
(i) Asavas (ii) Aristas (iii) Churnas (iv) Bhasmas
- 10 Write short notes on (i) Lehya (ii) Arista (iii) Leyhas (iv) Kashayams.

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FACULTY OF PHARMACY

**B. Pharmacy 3/4 - I Semester (Non-CBCS) (Backlog) Examination,
October 2020**

Subject: Medicinal Chemistry - I

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

1. (a) Discuss in detail the conjugation reactions involved in the drug metabolism.
(b) Write about protein binding of drugs its advantages and disadvantages.
2. (a) Write a short note on Bioisosterism and factors involved in drug solubility.
(b) What are prodrugs? How are they obtained? Mention their merits and demerits.
3. (a) Classify anti-cholinergic drugs with examples and discuss the SAR of Muscarinic agonists.
(b) Give the structure, chemical name and synthesis of salbutamol and Dicycloaniline HCl
4. (a) Add a note on neuromuscular blocking agents.
(b) Write about Acetyl choline esterase inhibitors.
5. (a) Classify antihyperlipidemic agents with examples and give the synthesis of clofibrate.
(b) Write a note on Cardiac glycosides and their MOA.
6. (a) What are the anti-arrhythmic agents. Discuss the MOA and SAR.
(b) Add a note on Vasodilators.
7. (a) Classify diuretics with examples.
(b) Add a note on positive Inotropic agents.
8. (a) Give the synthesis of Amrinone.
(b) Write the structure, synthesis, MOA and uses of following:
(i) Furosemide (ii) Tolbutamide (iii) Levaroisole (iv) Azathioprine.
9. (a) Add a note on H₂- Antihistamines.
(b) Write the synthesis and MOA of Chlorpheniramine and Ranitidine.
10. (a) Give a note on coagulants and Anti coagulants.
(b) Write the synthesis and MOA of warfarin and dipyridamole.

FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination, October 2020

Subject: Pharmacognosy - II

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

1. (a) Explain the Pharmacognostic study of Vinca.
(b) Write the biological source, chemical constituent and uses of
(i) Belladonna (ii) Nuxvomica (iii) Cinchona.
2. (a) Write the biological source and uses of
(i) Vinca (ii) Kurchi (iii) Opium (iv) Colchicum.
(b) Mention chemical tests for Alkaloids.
3. (a) Write the Pharmacognostic study of Senna.
(b) Write the biological source, chemistry and therapeutic uses of
(i) Psoralea (ii) Kalmegh (iii) Gentian.
4. (a) Write the biological source, chemical constituents, therapeutic uses of
(i) Squill (ii) digitalis.
(b) Write the biological source and chemical test for Aloe.
5. (a) Describe the isolation and estimation of sennosides from senna.
(b) Write the biological source and constituents of (i) Fennel (ii) Clove.
6. (a) Describe the isolation and estimation of Sennosides from Senna.
(b) Write the biological source, and uses of the following:
(i) Cinnamon (ii) Capsicum.
7. (a) Write short notes on sterilization of plant materials and Growth curve.
(b) What are Callus and suspension cultures? How are they initiated?
8. (a) Write any two methods for measurement of growth of tissues of Callus in plant cultures.
(b) Describe the nutritional requirements of plant cell in tissue culture.
9. (a) Describe any 2 Phyto Pharmaceuticals of medicinal importance.
(b) Write the preparation and properties of Bhasmas and churnas.
10. (a) Write the method of preparation of the following:
(i) Asavas (ii) Aristas (iii) Churnas (iv) Bhasmas.
(b) Write short notes on
(i) Leyhas (ii) Rasayanam.

FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (Non-CBCS)(Backlog) Examination, October 2020

Subject : Physical Pharmacy – I

Time : 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks)

- 1 (a) State and explain ideal gas law.
(b) Write and explain the postulates of the kinetic molecular theory.
(c) What is polymorphism? Write examples and its applications.
- 2 (a) What is phase rule? Explain the phase diagram of two component systems.
(b) Write a note on: (i) Differential Scanning Calorimetry (ii) Refractive Index
- 3 (a) State and explain first and second law of thermodynamics with applications.
(b) Define: (i) Specific heat & Latent heat (ii) Enthalpy (iii) Entropy
- 4 (a) Define and explain Hess's law of heat summation and its application.
(b) Explain Gibbs free energy functions and applications.
- 5 (a) What are colligative properties? Explain colligative property for determination of Molecular weight.
(b) Discuss the modern theory of strong electrolytes and Debye- Huckel theory.
- 6 (a) Explain Arrhenius theory of electrolytic dissociation.
(b) Explain Sorenson's pH scale.
(c) Derive the equation for determination of acidity & basicity constants.
- 7 (a) What are the methods for adjustment of tonicity & pH. Explain freezing point depression method for adjusting isotonicity.
(b) Define buffer. Derive buffer equation for weak acids.
- 8 (a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt.
(b) Write a note on pharmaceutical buffers and their preparation.
(c) Write a note on pH indicators.
- 9 (a) Discuss the principles and working of
(i) Hydrogen electrode (ii) Oxidation reduction electrode
(b) How to measure the EMF of cells?
- 10 (a) Explain the working of pH meter.
(b) Write a note on: (i) Catalysis and Catalyst (ii) Promoters and Inhibitors
(c) Write the applications of Redox potentials in pharmacy.

FACULTY OF PHARMACY

**B. Pharmacy 3/4 I - Semester (Non-CBCS) (Backlog) Examination,
October 2020**

Subject: Pharmaceutical Technology (Pharmaceutics – II)

Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions.

(4x17½=70 Marks).

1. Describe properties and selection of pharmaceutical excipients used in the formulation of liquid orals.
2. (b) Classify the type of capsules. What are the various raw materials used in the preparation of hard gelatin capsule?
(c) How hard gelatin capsules are manufactured.
3. (a) What are flocculating agents? Give example.
(b) How suspensions are formulated and evaluated.
4. (c) What are multiple emulsions?
(d) How emulsions are formulated and evaluated.
5. (a) What are the various process variables of film coating?
(b) Discuss on various materials used in film coating.
6. (c) Explain various film defects.
(d) Explain quality control test for tablets and mention its limits.
7. (a) What are large volume parenterals?
(b) What are the formulation requirements of parenterals? Discuss evaluation of parenterals.
8. (c) What are various formulation factors which have to be considered in the preparation of ophthalmic preparations?
(d) How ophthalmic products are evaluated?
9. (a) Classify aerosol containers.
(b) Explain valve assembly in detail.
10. (c) What is tamper proof packing? Classify them.
(d) Explain the tests for glass containers.

FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (NON-CBCS) (Backlog) Examination, December 2019

Subject : Pharmaceutical Technology (Pharmaceutics – II)

Time: 3Hours

Max. Marks: 70

Note: Answer All Questions, All Questions carry equal marks.

1. a Describe the properties and selection of pharmaceutical excipients used in the preparation of solid dosage forms? (14)
OR
b Give the capsule content of soft gelatin capsule. What are the quality control tests of soft gelatin capsules? (10)
c. Write a note on the substances which can be used and which cannot be used in soft gelatin capsules. (4)
2. a Classify emulsion. (4)
b. How emulsions are formulated and evaluated? (10)
OR
c. Classify suspension. (4)
d. How suspensions are formulated and evaluated? (10)
3. a. What are the various types of tablets? Explain with examples. (10)
b. What are the various components used in coating of tablets? (4)
OR
c. Explain the various film defects in coating process. (7)
d. Discuss single punch and rotary press with a neat diagram. (7)
4. a. Define parenterals. Discuss the different evaluation tests for parenterals. (9)
b. Classify the various routes of administration of parenterals. (5)
OR
c. Classify various preservatives used in formulation of ophthalmic products. (7)
d. How ophthalmic products are stored and packed? (7)
5. a. What are the components of aerosol package? Explain in detail. (10)
b. What are propellants? Classify them. (4)
OR
c. What are the factors influencing the choice of the container? (5)
d. Give the in- house and finished product testing of pharmaceutical packages. (9)

FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination,
December 2019****Subject: MEDICINAL CHEMISTRY - I****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

1. (a) Discuss in detail the importance of steric features of drugs. 7
 (b) Explain the role of cytochrome 450 enzyme in drug Metabolism. 7
OR
 (c) Explain how the following physicochemical properties influence the biological action of a drug molecule. 14
 (i) Partition coefficient (2) Chelation (3) Hydrogen bonding (4) Redox potentials. (4+4+3+3)
2. (a) Explain the SAR of Adrenergic blocking agents. 8
 (b) Give the synthesis, uses and MOA of Salbutamol and Dicyclomine Hcl. 3+3
OR
 (c) Add a note on Ganglionic blocking agents. 8
 (d) Give the synthesis and MOA of Carbachol and Isoproterenol. 3+3
3. (a) What are antihypertensive agents. Classify them with examples. Discuss the SAR of ACE inhibitors 1+2+5
 (b) Give the synthesis and uses of clonidine and captopril. 3+3
OR
 (c) Add a note on antiplatelet drugs. 6
 (d) Give the synthesis, MOA and uses of clofibrate and verapamil. 4+4
4. (a) Explain the SAR of any two types of Diuretics. 8
 (b) Add a note on Immuno suppressants. 6
OR
 (c) Discuss the chemistry of Antithyroid agents. 6
 (d) Give a note on Hypoglycemic agents and write the synthesis of Tolbutamide. 6+2
5. (a) Classify antihistamines with examples. Explain the SAR of H₁ antihistamines. 2+7
 (b) Write the synthesis of cetirizine and Ranitidine. 3+2
OR
 (c) Add a note on proton pump inhibitors. 6
 (d) Give the synthesis and MOA of Omeprazole and Diphenhydramine. 8

FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (NON-CBCS) (Backlog) Examination, January 2020

Subject : Pharmacognosy-II

Time: 3Hours

Max. Marks: 70

Note: Answer All Questions, All Questions carry equal marks.

- 1) a) Explain the Pharmacognostic study of vinca (8)
b) Write the biological source, chemical constituents and uses of (6)
i) Rauwolfia ii) Kurchi
OR
c) Write the General Method of Extraction of Alkaloids (8)
d) Write the diagnostic features of (6)
i) Nuxvomica ii) Ephedra iii) Cinchona
- 2) a) Write the Pharmacognostic study of digitalis (8)
b) Write the biological source, chemistry and therapeutic uses of (6)
i) Gymnema ii) Ashwagandha
OR
c) Write the Pharmacognostic study of senna (8)
d) Write the Biological source, chemistry and therapeutics uses of (6)
i) Dioscoreia ii) Stropanthus
- 3) a) Write the isolation and estimation of caffiene from tea (8)
b) Write the biological source, chemical constituents and uses of (6)
i) Fennel ii) Podophyllum
OR
c) Write the isolation and estimation of Tannic acid from myrobalan (8)
d) Write the biological source, chemical constituents and uses of (6)
i) Clove ii) Cinnamon
- 4) a) Discuss the applications of plant tissue culture technique in the production of biomedicinals (8)
b) Discuss the importance of Macronutrients and growth regulators in plant tissue culture media preparation (6)
OR
c) Write the effect of cultural practices on production of secondary metabolites. (8)
d) Write a short note on Advantages and Disadvantages of plant tissue culture technique (6)
- 5) a) Write the method of preparation of the following (8)
i) Asavas ii) Aristas iii) Churnas iv) Bhasmas
b) What are Lehyas and Kashayams. Describe the method of preparation with examples (6)
OR
c) Discuss the problems involved in standardization of Herbal Formulations with examples. (8)
d) Describe any 2 Phytopharmaceuticals of Medicinal importance (6)

FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination,
January 2020****Subject: Pharmacology - I****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

1. (a) Write in detail about various biotransformation reactions with examples. 10
- (b) Define the following: 4
 - (i) Therapeutic Index.
 - (ii) Biological half life.

OR

- (c) Explain in detail about the advantages and disadvantages of different routes of drug administration. 14
2. (a) Write the pharmacological effects of acetyl choline. 7
- (b) Explain the various therapeutic uses and adverse reactions of (β) – adrenergic blockers. 7

OR

- (c) Explain the pharmacological actions and therapeutic uses of the following: 7+7
 - (i) Acetylcholinesterase Inhibitors.
 - (ii) β - Adrenergic blockers.
3. (a) Classify anti-depressants and explain the mechanism of action, adverse reactions and therapeutic uses of any two class of drugs. 6+8

OR

- (b) Write the classification of Non-steroidal anti-inflammatory agents and explain the details of any two classes of drugs. 6+8
4. (a) Define arrhythmia. Classify the anti-arrhythmic agents with examples. Write about the mechanism of action and adverse reactions of any one class of drugs. 2+5+7

OR

- (b) Write short notes on: 7+7
 - (i) Bronchodilators.
 - (ii) Anti-anginal agents.
5. (a) Classify the agents used in treatment of peptic ulcer disease. Write about the pharmacological actions and therapeutic uses of Ranitidine and Omeprazole. 4+5+5

OR

- (b) Write about the following: 7+7
 - (i) Anti-diarrhoeal agents.
 - (ii) Anti-emetic agents.

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FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Sem. (Non-CBCS) (Backlog) Examination, January 2020****Subject: Physical Pharmacy - I****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

1. (a) Write and explain the postulates of the kinetic molecular theory. 7
(b) Write the importance of polymorphism with examples and its applications. 7
- OR**
2. (a) What is phase rule? Explain the phase diagram for two component systems. 9
(b) Write a note on Differential Scanning Calorimetry with applications. 5
3. (a) Define i) Specific heat & Latent heat ii) Enthalpy iii) Entropy/ 6
(b) State and explain first and second law of thermodynamics with applications. 8
- OR**
4. (a) Define and explain Hess's law of heat summation and its application. 8
(b) Explain Gibbs free energy and applications. 6
5. (a) What are colligative properties? Explain suitable colligative properties for molecular weight determination. 8
(b) Discuss the modern theory of strong electrolytes and Debye-Huckel theory. 6
- OR**
6. (a) Explain Arrhenius theory of electrolytic dissociation. 5
(b) Derive the equation for determination of acidity & basicity constant and write its use. 9
7. (a) Define buffer. Derive buffer equation for weak acids. 4
(b) What are the methods for adjustment of tonicity? Explain freezing point depression method for adjusting isotonicity. 10
- OR**
8. (a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt. 7
(b) Write a note on pharmaceutical buffers and their preparation. Influence of pH on tissue irritation. 7
9. (a) Explain different types of electrodes. 9
(b) How to measure the EMF of cells. 5
- OR**
10. (a) Draw and explain Daniel cell. 5
(b) Write a note on: (i) Catalysis and Catalyst (ii) Promoters and Inhibitors
(iii) Applications of Redox potentials in pharmacy. 9

FACULTY OF PHARMACY

**B. Pharmacy 3/4-Year I-Semester (Non-CBCS)(Backlog) Examination,
August 2019**

Subject : Pharmacology - I

Time : 3 Hours**Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

- 1 a) What are different routes of drug administration? Compare the merits and demerits of oral and parenteral routes of administration. (8)
 - b) Define the following: (6)
 - (i) Therapeutic Index
 - (ii) Tolerance
 - (iii) Biological Half life
- OR**
- c) Define and classify the receptors. Explain in detail about G – protein coupled receptors (2+3+5)
 - d) Write short notes on LD₅₀ and ED₅₀ (4)
- 2 a) Explain the pharmacological effects and therapeutic uses of: (14)
 - (i) Physostigmine
 - (ii) Atropine
 - (iii) Propranolol
 - (iv) Prazosin
- OR**
- b) Classify the Cholinergic agents with examples. Write their actions on (i) Heart, (ii) Bronchioles, (iii) Intestine and (iv) Eye. Add a note on their therapeutic uses. (4+8+2)
- 3 a) Write about the classification of anti-depressant agents. Write in detail about the mechanism of action, therapeutic uses and adverse reactions of Selective Serotonin Receptors Inhibitors (SSRIs). (6+ 8)
- OR**
- b) Classify anti-epileptic agents and explain the mechanism of action and therapeutic uses of Sodium Valproate and Phenytoin. (2+6+6)
- 4 a) Define hypertension. Classify the antihypertensive agents with examples. Write about the mechanism of action and adverse reactions of ACE inhibitors and Calcium channel blockers. (2+6+6)
- OR**
- b) What is bronchial asthma? Classify anti-asthmatic drugs. Explain the pharmacology of any two drugs. (2+4+8)
- 5 a) Define Diuresis. Classify Diuretics and explain mechanism of action and therapeutic uses of loop diuretics and potassium sparing diuretics. (2+4+8)
- OR**
- b) Write about the mechanism of action and therapeutic uses of pantaprazole. (4)
 - c) Write short note on: (10)
 - (i) Anti-emetic agents
 - (ii) Laxatives

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FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Sem. (Non-CBCS) (Backlog) Examination, July 2019****Subject: Physical Pharmacy - I****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

1. (a) Write and explain the postulates of the kinetic molecular theory. 5
(b) Explain the various methods of achieving liquefaction of gases. 9
- OR**
2. (a) Write a note on Gibbs phase rule. Explain the phenol-water system. 7
(b) Write the importance of thermal analysis. Explain DSC and DTA with applications. 7
3. (a) Explain laws of conservation of energy and meaning of energy balance and its importance in thermodynamics. 7
(b) State and explain first law of thermodynamics. 7
- OR**
4. (a) Define i) Heat of formation and combustion ii) Enthalpy and Entropy. 9
(b) Write Free Energy functions and applications. 5
5. (a) What are ideal solutions and real solution? Explain derivations of Raoult's law. 6
(b) Explain colligative properties of solutions of nonelectrolytes. 8
- OR**
6. (a) Explain the concepts of activity and activity coefficients. 5
(b) Derive an equation for ionization of weak acids. 9
7. (a) Explain different methods for adjusting isotonicity. 9
(b) Write a brief note on i) pH indicators ii) Physiological buffer. 5
- OR**
8. (a) Derive Henderson-Hasselbalch buffer equation for a weak acid and its salt. 8
(b) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and its applications. 6
9. (a) Write a note on different types of electrodes. Explain Hydrogen and Glass electrodes. 9
(b) How do you measure EMF of a cell? 5
- OR**
10. (a) Write application of Oxidation-Reduction Potentials (Redox potentials) in pharmacy. 6
(b) What is catalysis and catalyst? Write types of catalysts, catalytic reactions. Write factors affecting on the catalysis. 8

FACULTY OF PHARMACY**B. Pharmacy 3/4-Year I-Semester (Non-CBCS)(Backlog) Examination, July 2019****Subject : Pharmaceutical Technology
(Pharmaceutics – II)****Time : 3 Hours****Max. Marks: 70*****Note: Answer all questions. All questions carry equal marks.***

- 1 (a) Explain the properties and selection of antioxidants and diluents for pharmaceutical formulations? 7
- (b) Classify hydrocolloids? Write a note on any two hydrocolloids used in pharmaceutical formulations? 7
- OR**
- (c) Describe any two filling methods of hard gelatin capsules? 8
- (d) Describe evaluation tests for soft gelatin capsules? 6
- 2 (a) Define suspensions? How will you formulate a suspension? what are the factors affecting formulation of a suspension? 10
- (b) Discuss in brief the rheology of suspensions? 4
- OR**
- (c) Define emulsion? How will you evaluate shelf life of an emulsion? 6
- (d) Describe evaluation of an emulsion and add a note on multiple emulsion? 8
- 3 (a) Why coating of tablets required? Classify various types of coating? 6
- (b) Explain film coating defects? 8
- OR**
- (c) Classify different types of tablets? Mention the components of chewable tablet? 6
- (d) What are various problems encountered during compression of a tablet? 8
- 4 (a) Classify parenterals? What do you mean by BFS (Blow fill seal) and FFS (form fill seal) technology? 6
- (b) Explain evaluation tests for sterile powders? 8
- OR**
- (c) Explain methods of manufacture of eye drops? What are the labelling instructions required for ophthalmic preparations? 9
- (d) Write a note on parenteral suspension? 5
- 5 (a) What are the manufacturing methods of aerosols? Mention the advantages and disadvantages? 9
- (b) Explain packaging of aerosols? 5
- OR**
- (c) Explain metal as a pharmaceutical packaging system? What are the quality control tests performed for metal containers? 6
- (d) Write a note on incompatibility of drugs and containers with examples? 8

FACULTY OF PHARMACY**B. Pharmacy 3/4 I-Semester (Non-CBCS) (Backlog) Examination, July 2019****Subject : Medicinal Chemistry - I****Time : 3 Hours****Max. Marks: 70*****Note: Answer All questions, All Questions carry equal marks.***

- 1 a) Explain the importance of bioisosters and steric features that are specific for elicitation of biologic response. 9M
b) Write about protein binding of drugs its advantages and disadvantages. 5M
OR
- 2 a) Discuss in detail conjugation reactions involved in drug Metabolism. 6M
b) Define and give the significance of Ionization and partition coefficient. 8M
- 3 a) What are cholinergic drugs. Write the MOA and SAR. 8M
b) Give the structure and synthesis of following :
1) Carbochol 2) Dicyclomine Hcl 2x3=6M
OR
- 4 Add a note on following:
a) Adrenergic blocking agents 7M
b) Neuromuscular blocking agents. 7M
- 5 a) What are anti-arrhythmic agents. Classify them with examples. 2+2+2+3M
Discuss the mode of action & SAR. 5M
b) Write the synthesis and uses of captopril. 5M
OR
- 6 a) Define and classify antihyper lipidemic agents with examples and SAR of statins. 7M
b) Add a note on Vasodilators. 7M
- 7 a) Write short note on Immuno modulators. 6M
b) Give the synthesis and uses of Amiloride and Amrinone. 4+4M
OR
- 8 a) Write the structure, synthesis and uses of following drugs. 3.5x4=14M
1) Propyl thiouracil
2) Acetazolamide
3) Azathioprine
4) Glyclazide
- 9 a) Write a note on proton pump Inhibitors. 6M
b) Give the structure, synthesis, uses and MOA of omeprazole and citrizine. 4+4M
OR
- 10 a) Add a note on coagulants and anti coagulants. 6M
b) Write the synthesis, MOA and uses of Diphenhydramine and warfarin. 8M
