This question paper contains 3 printed pages]

PM—32—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharm. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2025

PHARMACEUTICAL ORGANIC CHEMISTRY-III

BP401T

(Thursday, 8-5-2025) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Write structure and chemical reaction wherever necessary.

1. Answer the following : 10×2=20

(*a*) Write the difference between Enantiomerism and Diastereoisomerism.

(*b*) Give any *two* applications of Birch reduction reaction.

(*c*) Write any *two* nucleophilic substitution reaction of Pyrimidine.

(*d*) Write the different Newmann conformation of Ethane.

(*e*) Draw the structure and medicinal uses of Imidazole.

(*f*) Define :

(*i*) Optical isomerism

(*ii*) Meso compound.

P.T.O.

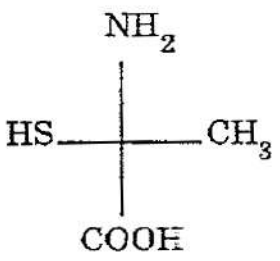
(*g*) Write any *two* electrophilic substitution reaction of Furan.

(*h*) Write the principle of metal hydride reduction reaction with suitable chemical reaction.

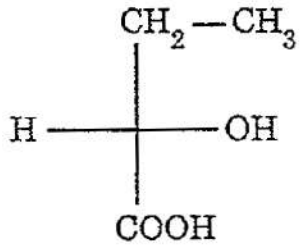
(*i*) Write any *two* methods for synthesis of Pyrrole.

(*j*) Assign R and S configuration of the following compounds :

(*i*)



(*ii*)



2. Answer any *two* of the following : 2×10=20

(*a*) Explain CIP rule and Fischer projection rule for nomenclature of 'R' and 'S' isomerism.

(*b*) Define conformational isomerism. Write the different conformation and energy profile diagram of *n*-Butane and Cyclohexane.

(*c*) Write any *three* synthesis and *four* chemical reactions of Indole.

3. Answer any *seven* of the following : 7×5=35

(*a*) Define and classify heterocyclic compounds with suitable example.

(*b*) Write Dakin reaction with its mechanism.

(*c*) Explain the stereospecific and stereoselective reaction with suitable example.

(*d*) Write different methods used for a resolution of racemic mixture.

(*e*) Write any *two* synthesis and chemical reactions of Imidazole.

(*f*) Explain partial and absolute asymmetric synthesis with suitable example.

(*g*) Write the reaction, mechanism and application of Wolff-Kishner reduction reaction.

(*h*) Explain the Atropisomerism with suitable example.

(*i*) Write the structures and numbering of the following heterocyclic compounds :

(1) Oxazole

(2) Isoquinoline

(3) Acridine

(4) Purine

(5) Azepines.

This question paper contains 4 printed pages]

PM—36—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharm. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2025

MEDICINAL CHEMISTRY-I

(Saturday, 10-5-2025) (BP402T) **Time : 2.00 p.m. to 5.00 p.m**

Time—Three Hours *Maximum Marks*—75

Note :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Figures to the right indicate full marks.

1. Solve the following : 2×10=20

(*a*) Sketch out scheme of synthesis of ibuprofen.

(*b*) Define partition coefficient.

(*c*) Draw structure and write IUPAC name of Diazepam.

(*d*) Enlist types of bioisosterism.

P.T.O.

(e) Classify general anesthetics

(f) Draw structure and give therapeutic uses of phenytoin.

(g) Give mechanism of action of barbiturates.

(h) Give synthesis of Haloperidol.

(i) Identify parent nucleus and draw its structure in Clonazepam and Tolazolines.

(j) Which two enzymes metabolise catecholamines.

2. Solve any *two* of the following : 2×10=20

(a) Define and give classification of sympathomimetic agents with examples. Explain the Structure Activity Relationship (SAR) and MOA of sympathomimetic agents.

(b) Elaborate the chemistry of morphine, SAR and its MOA. Discuss with examples how the morphine structure was modified for butter analgesic activity.

(c) Define sedatives and hypnotics. Explain SAR of Barbiturates. Give synthesis of diazepam.

3. Solve any *seven* of the following : 7×5=35

(*a*) Draw the structures of the following drugs :

(*i*) Z-PAM

(*ii*) Phenobarbitone

(*iii*) Valproic acid

(*iv*) Fentanyl citrate

(*v*) Paracetamol.

(*b*) Draw scheme of Ibuprofen and fentanyl citrate.

(*c*) What are anticonvulsants ? Classify them with structures of suitable examples.

(*d*) Draw structure and give therapeutic uses of :

(*i*) Naloxane

(*ii*) Aspirin

(*iii*) Atropin sulfate

(*iv*) Prazocin

(*v*) Ethosuximide.

P.T.O.

(e) Discuss importance of stereochemistry for drug action with examples.

(f) Give biosynthesis of acetylcholine

(g) Give SAR of Benzodiazepines.

(h) Discuss the Butyrophenone derivatives as antipsychotics with examples.

(i) Write SAR and uses of Acetylcholine.

This question paper contains 3 printed pages]

PM—40—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharm (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2025

PHYSICAL PHARMACEUTICS-II

BP-403T

(Wednesday, 14-5-2025) **Time : 2.00 p.m. to 5.00 p.m**

Time—Three Hours *Maximum Marks—75*

Note :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Draw figures wherever necessary.

1. Answer the following : 2×10=20

(*a*) Differentiate between creaming and cracking.

(*b*) State Stoke's law.

(*c*) Define Hausner's ratio. Write its significance.

(*d*) Classify dispersed systems.

(*e*) What is thixotropy ?

P.T.O.

(*f*) Enlist different methods of determination of order of reaction.

(*g*) Define bulk density and true density.

(*h*) What is Rheology ? Write its applications.

(*i*) Differentiate between flocculated and deflocculated suspension.

(*j*) What is gold number ?

2. Answer the following (any *two*) : 2×10=20

(*a*) Explain chemical degradation of pharmaceutical compounds due to oxidation. Write its preventive measures.

(*b*) Define viscosity. Classify different viscometers with examples.

(*c*) Describe the electrical properties and optical properties of colloids.

3. Answer the following (any *seven*) : 7×5=35

(*a*) Explain any *two* derived properties of powders.

(*b*) Write identification tests of emulsions.

(*c*) Explain methods for purification of colloids.

(*d*) Define Arrhenius plot and write its significance in calculation of shelf life.

(*e*) What is specific surface area ? How is it measured by air permeability method ?

(*f*) Explain the factors influencing the rate of reaction.

(*g*) Describe non-Newtonian systems of flow with examples.

(*h*) Explain the formulation of emulsion by HLB method.

(*i*) What are Bulges and Spurs ? Write the applications of thixotropy.

This question paper contains 3 printed pages]

PM—44—2025

FACULTY OF SCIENCES AND TECHNOLOGY

B. Pharm. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2025

PHARMACOLOGY-I

Paper BP-404T

(Friday, 16-5-2025) **Time : 2.00 p.m. to 5.00 p.m**

Time—Three Hours *Maximum Marks—75*

Note :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Answer to the point only.

1. Answer the following questions : 10×2=20

(*a*) Define the following terms :

(*i*) Pharmacokinetics

(*ii*) Pharmacodynamics

(*b*) Enlist the various barrier for drug distribution.

P.T.O.

(c) What are adverse drug reaction ?

(d) Mention the drug used in the treatment of Myasthenia gravis.

(e) What are drug tolerance and drug dependence ?

(f) What are Analeptics ? Write its *two* examples.

(g) Write the mechanism of action of phenytoin.

(h) What do you mean by preanesthics ?

(i) Define the following terms :

(i) Idiosyncrasy

(ii) Allergy

(j) What are opoid antagonist ? Write its *two* examples.

2. Answer the following questions (any *two*) : 2×10=20

(a) Define and classify sedative and hypnotic. Write pharmacology of barbiturate.

(b) Classify sympatholytic agents and write pharmacological accounts of propranolol.

(c) Write the various steps of neurohumoral transmission in ANS. Give pharmacology of Adrenaline.

3. Answer the following questions (any *seven*) : 7×5=35

(*a*) Write the pharmacology of morphine.

(*b*) Write the mechanism of drug absorption.

(*c*) Classify antidepressants. Write MOA desipramine.

(*d*) Write the various stages of new drug development.

(*e*) Write the pharmacology of Acetylcholine.

(*f*) What are drug metabolism ? Write the phases of drug metabolism.

(*g*) Classify local anaesthetics and write pharmacology of Lignocaine.

(*h*) Write the pharmacology of choline esterase inhibitors.

(*i*) Give the pharmacology of Alcohol.

This question paper contains 3 printed pages]

PM—45—2025

FACULTY OF PHARMACEUTICAL SCIENCES

B. Pharm. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2025

PHARMACOGNOSY AND PHYTOCHEMISTRY-I

(Monday, 19-5-2025) (BP405T) **Time : 2.00 p.m. to 5.00 p.m**

Time—Three Hours *Maximum Marks*—75

Note :— (*i*) *All* questions are compulsory.

(*ii*) Illustrate your answers with sketches wherever necessary.

(*iii*) Figures to the right indicate full marks

(*iv*) Answer to the point only.

1. Answer *all* of the following : 10×2=20

(*a*) Define pharmacognosy. Enlist any *two* sources of plant sources of crude drug.

(*b*) Define hybridization and tissue culture.

(*c*) What is edible vaccine ?

(*d*) Who introduced 'Homeopathy' system of medicine ?

P.T.O.

(e) Write about camera lucida.

(f) Give the formula for calculation of stomatal index.

(g) Define microscope Classify types of microscope.

(h) Enlist any *four* examples of marine drugs.

(i) Write the uses of pepsin and urokinase.

(j) Write any *four* uses of Bees wax.

2. Answer any *two* of the following : 2×10=20

(a) What is cultivation ? Discuss factors influencing cultivation of medicinal plant.

(b) Define evaluation of crude drug. Discuss physical and chemical evaluation of crude drug.

(c) What is Pharmacognosy ? Discuss history and scope of pharmacognosy.

3. Answer any *seven* of the following : 7×5=35

(a) Define adulteration of crude drug. Discuss different methods of adulteration.

(b) Write a short note on Ayurveda and Siddha traditional system of medicine.

(c) Discuss various factors influencing cultivation of medicinal plants.

(*d*) Define and classify glycosides. Write properties and identification tests of glycosides.

(*e*) Write biological source, chemical constituents and uses of Acacia and Honey.

(*f*) Define tissue culture. Discuss historical development of plant tissue culture.

(*g*) Write biological source, chemical constituents and uses of Tragacanth and Jute.