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PP—34—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

PHYSICAL PHARMACEUTICS–I

Paper BP302T

(Thursday, 28-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks—75*

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

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

1. Answer the following : 10×2=20
   (*a*) Define partition coefficient.
   (*b*) What do you mean by Glassy State ?
   (*c*) Define solubility.
   (*d*) What is meant by pH and buffer capacity ?
   (*e*) State Roult's law.
   (*f*) Give applications of buffers.
   (*g*) What are eutectic mixtures ?
   (*h*) What is latent heat ?
   (*i*) Define relative humidity.
   (*j*) What is meant by vapour pressure ?

P.T.O.

2. Solve any *two* of the following : 2×10=20
   (*a*) Discuss factors affecting solubility of drugs.
   (*b*) What are aerosols ? Draw a neat labelled diagram of aerosol and give its application.
   (*c*) Define surface tension. Explain various methods of measurement of it.
3. Solve any *seven* of the following : 7×5=35
   (*a*) What is refraction ? Give application of refractive index.
   (*b*) Describe the role of polar solvent and non-polar solvents in solubility of the drugs.
   (*c*) Explain partial miscibility curve of phenol water system.
   (*d*) Explain protein binding.
   (*e*) What is optical rotation ? Explain polarimeter.
   (*f*) Give application of complexation.
   (*g*) Define Isotonicity. Explain any *one* method to determine isotonicity.
   (*h*) Explain HLB system with neat labelled diagram.
   (*i*) Explain in brief solubilization and detergency.

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PP—30—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (III Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY–II

Paper BP301T

(Tuesday, 26-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) Solve *all* questions.

(*ii*) Draw structure and reating wherever necessary.

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

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

(*a*) Write structure and uses of Saccharine and BHC.

(*b*) Define activating and deactivating groups with examples.

(*c*) Write structure and uses of aryl diazonium salts.

(*d*) Explain synthetic uses of aryl diazonium salts.

(*e*) What is Huckel's rule ? Give its significance.

(*f*) Give the qualitative test of phenol.

P.T.O.

(*g*) Define the terms aromaticity and resonance.

(*h*) What are ortho para directing groups ? Give examples.

(*i*) Discuss the stability of cycloalkanes.

(*j*) Outline *two* reactions of cyclopropane.

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

(*a*) Define electrophilic substitution reaction. Explain mechanism of nitration and sulphonation of benzene.

(*b*) What are aromatics ? Explain the reactions of aromatic amines. Discuss the effect of substituents on basicity of aromatic amines.

(*c*) What are fatty acids ? Explain significance and reactions of hydrolysis, hydrogenation, rancidity and drying of oils.

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

(*a*) Explain the Friedel-Craft's alkylation of benzene with limitations.

(*b*) Outline any *two* synthesis and reactions of naphthalene.

(*c*) Define angle strain. Explain why higher cycloalkanes are more stable than lower members.

(*d*) Give any *four* chemical reactions of cyclobutane.

(*e*) Explain the reaction and mechanism of nitration of benzene.

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(*f*) Give structure and uses of :

(*i*) phenol

(*ii*) *o*-cresol

(*iii*) resorcinol

(*iv*) α-naphthol

(*v*) β-naphthol.

(*g*) Describe Bayer's strain theory. What are its limitations ?

(*h*) Describe any *one* method to determine Reichert-Meissl value with its significance.

(*i*) Explain Sache-Mohr theory and molecular orbital concept of Cycloalkanes.

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PP—38—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

PHARMACEUTICAL MICROBIOLOGY

Paper–(BP-303T)

(Saturday, 30-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Draw neat labelled diagrams wherever necessary.

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

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

(*a*) Give the functions of bacterial cell wall.

(*b*) Enlist the different types of culture media.

(*c*) Write the principle of simple staining.

(*d*) Define D-value and 2-value.

(*e*) Write the importance of fungi.

(*f*) Draw a neat labelled diagram of Bacteriophages.

(*g*) Write ideal properties of disinfectant.

(*h*) How will you validate HEPA filter ?

(*i*) Enlist different chemical preservatives.

(*j*) Give the principle of Autoclave.

P.T.O.

2. Solve any *two* : 10×2=20

(*a*) Write in detail importance, scope of pharmaceutical microbiology. Enlist applied branches of microbiology.

(*b*) Define sterilization. List the different methods used for sterilization with suitable example. Explain filtration sterilization.

(*c*) Explain in detail multiplication of Human Viruses.

3. Solve any *seven* : 7×5=35

(*a*) Explain factors affecting preservative efficacy.

(*b*) Explain different applications of cell cultures in pharmaceuticals.

(*c*) Explain the different sources and types of microbial contamination of pharmaceutical product.

(*d*) How will you assess new antibiotics by MIC.

(*e*) Differentiate between Gram-Positive and Gram-negative bacterial cell wall.

(*f*) Explain air sampling methods for testing of clean and aseptic room.

(*g*) Give in detail classification of disinfectants with its mechanism of action.

(*h*) Describe in detail lytic growth cycle of Bacteriophage.

(*i*) Give the advantages and disadvantages and applications of moist heat sterilization.

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PP—42—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharmacy (Third Semester) EXAMINATION

JANUARY, 2024

PHARMACEUTICAL ENGINEERING

(BP-304T)

(Tuesday, 02-01-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) Answer *all* the questions.

(*ii*) Answer to the point only.

(*iii*) Draw neat labelled diagram wherever necessary.

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

(*a*) What is coarse powder and very fine powder ?

(*b*) What is Reynolds number ? Give its equation.

(*c*) Give classification of dryers.

(*d*) What is convective and diffusive mixing ?

(*e*) Define terms distillation and ideal solution.

(*f*) Define terms conduction and convection with *one* example.

(*g*) What is filter aid ? Give its ideal properties.

(*h*) Define terms filtration and clarification.

(*i*) Give classification of materials used for Pharmaceutical plant construction.

(*j*) Draw well labelled diagram of rotary drum filter.

P.T.O.

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

(*a*) Give principle, construction, working, uses, advantages and disadvantages of fluidized bed dryer.

(*b*) Write in detail about steam distillation method.

(*c*) Write in detail about sieve shaker machine.

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

(*a*) Give principle, construction, working of fractional distillation.

(*b*) Write in detail about fluid energy mill.

(*c*) Give factors affecting evaporation.

(*d*) Give principle, construction, working of venturimeter.

(*e*) Write in detail about tray dryer.

(*f*) Write principle, construction and working of planetary mixer.

(*g*) Explain different types of corrosion.

(*h*) Give principle, construction and working of filter leaf.

(*i*) Write in detail about perforated basket centrifuge.

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PP—40—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

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

JANUARY, 2024

PHYSICAL PHARMACEUTICS

Paper–II(BP-403T)

(Monday, 01-01-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Draw well labelled diagram wherever necessary.

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

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

(*a*) What are ideal solutions ?

(*b*) Enlist applications of colloids.

(*c*) What is sedimentation volume and degree of flocculation ?

(*d*) Differentiate between lyophilic colloids and lyophobic colloids.

(*e*) Define first order reaction with an example.

(*f*) What is Tyndall effect ?

(*g*) Define zeta potential with an example.

(*h*) What is Newton's law of flow ?

(*i*) Define viscosity along with its unit.

(*j*) Write a short note on thixotrophy.

P.T.O.

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

(*a*) Explain in detail the working principle of cup and bob and cone and plate viscometer with its advantages and disadvantages.

(*b*) Explain different methods of preparation and purification of colloids.

(*c*) What is accelarated stability study ? Give in detail its advantages and disadvantages.

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

(*a*) Describe electrical properties of colloids.

(*b*) Explain theories of emulsification.

(*c*) Write the principle and working of coulter counter method to determine particle size with a neat diagram.

(*d*) Discuss briefly the concept of DLVO theory.

(*e*) Write a note on derived properties of powder.

(*f*) Explain principle and working of Ostwald's viscometer.

(*g*) Give the difference between flocculated and deflocculated suspension.

(*h*) Write about physical degradation pathway of pharmaceutical product.

(*i*) What is porosity ? Give its application in pharmacy.

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PP—45—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharm. (Fourth Semester) EXAMINATION

JANUARY, 2024

PHARMACOGNOSY AND PHYTOCHEMISTRY-I

(BP–405T)

(Friday, 05-1-2024) **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*) Answer to the point only.

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

(*a*) Define pharmacognosy and phytochemistry.

(*b*) Enlist sources of crude drug with examples.

(*c*) Differentiate between organized and unorganized crude drugs.

(*d*) Define drug aldulteration and drug evaluation.

(*e*) Define polyploids and mutation.

(*f*) Define plant tissue culture and give its types.

(*g*) Give biological source and chemical constituents of cotton.

P.T.O.

(*h*) Define Glycosides and tannins.

(*i*) Give Goldbeater's skin test.

(*j*) Write a note on method of preparation of Honey.

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

(*a*) Write history, scope and development of pharmacognosy.

(*b*) Write a short note on crude drug adulteration and any *two* methods of drug evaluation.

(*c*) Write synonym, biological source, chemical constituents, chemical test and uses of acacia and gelatin.

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

(*a*) Classify crude drugs on the basis of Alphabetical and pharmacological classification.

(*b*) Write a note on factors influencing on cultivation of medicinal plants.

(*c*) Discuss in brief on historical development of PTC. Give nutritional requirement of PTC.

(*d*) Write about Ayurveda and Unani system of medicine.

(*e*) Give biological source, chemical constituent and uses of wool fat and bees wax

(*f*) Write a note on novel medicinal agents from marine sources.

(*g*) Give biological source, chemical constituent and uses of tragacanth and honey.

(*h*) Write a note on Hallucinogens and tetratogens.

(*i*) Give classification and general identification test for alkaloid and volatile oil.

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PP—44—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Fourth Semester) EXAMINATION

JANUARY, 2024

PHARMACOLOGY-I

(BP–404T)

(Wednesday, 03-01-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Illustrate your answer with neat sketch wherever necessary.

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

1. Answer the following : 20

(*a*) Define the term pharmacokinetics and pharmacodynamics.

(*b*) Write the advantages and disadvantages of sublingual route of drug administration.

(*c*) Define the term idiosyncrasy and tachyphylaxis.

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

(*e*) Write mechanism of action of benzodiazepine

(*f*) Write therapeutic uses of Adrenaline.

P.T.O.

(*g*) Classify local anaesthetics with a suitable example.

(*h*) Define Nootropics and write its *two* examples.

(*i*) Define the terms anti-manics and hallucinogens.

(*j*) Enlist the drug used in the treatment of Parkinsons disease.

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

(*a*) Define and classify parasympathomimetics agents and write pharmacological accounts of Acetylcholine.

(*b*) Define and classify sedative and hypnotics and write pharmacological accounts of barbiturates.

(*c*) Classify anti-depressants and write pharmacological account of SSRI.

3. Answer the following (any *seven*) : 35

(*a*) Classify anti-epileptic agents and write mechanism of action of phenytoin.

(*b*) Write the neurohumoral transmission in CNS.

(*c*) Write pharmacological action of alcohol.

(*d*) Define drug excretion and write factors affecting drug excretion.

(*e*) Write pharmacological account of Adrenaline.

(*f*) Write the factors affecting drug absorption.

(*g*) Write the phases of clinical trials.

(*h*) Define drug interaction and write the mechanism of drug interaction.

(*i*) Classify anti-anxiety agents and write the pharmacology of diazepam.

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PP—36—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (IV Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

MEDICINAL CHEMISTRY–I

Paper BP402T

(Friday, 29-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks—75*

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

(*ii*) Write figures and suitable example wherver necessary.

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

(*a*) What is biotransformation ?

(*b*) Write structure and IUPAC name of dopamine.

(*c*) Figure out antagonistic activity of morphine in narcotic analgesic.

(*d*) Classify general anaesthetics.

(*e*) What are sedative-hypnotics ?

(*f*) Write structure and IUPAC name of propranolol.

(*g*) What is partition coefficient ?

(*h*) Enlist any *two* α-adrenergic blockers.

(*i*) Define bioisosterism.

(*j*) Give biosynthetic pathway of Ach.

P.T.O.

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

(*a*) Write chemical classification of anti-inflammatory agents with at least *one* structure from each class.

(*b*) Explain in detail SAR of benzodiazepines.

(*c*) Write synthesis of phenytoin and carbamazepine.

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

(*a*) Explain biosynthesis and metabolism of noradrenalin.

(*b*) Explain phase I reactions of drug metabolism with a suitable example.

(*c*) Explain the role of ionisation and solubility in reaction to biological activity.

(*d*) Write the synthesis of salbutamol.

(*e*) Explain SAR of phenothiazines.

(*f*) Write the structure and IUPAC name of :

(*i*) Oxazepam

(*ii*) Piroxicam

(*iii*) Haloperidol.

(*g*) Write structure, IUPAC name, MOA and uses of esmolol.

(*h*) Explain the SAR of sympathomimetics.

(*i*) Write the synthesis of halothane and propranolol.

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PP—32—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY–III

Paper BP401T

(Wednesday, 27-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

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

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

(*iii*) Draw structures wherever necessary.

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

(*a*) Define asymmetric synthesis.

(*b*) Draw structure of quinoline and give its numbering style.

(*c*) Write medicinal uses of azepines.

(*d*) Write any *one* preparation method of thiazole.

(*e*) Write nitration reaction of pyrrole.

(*f*) Write any *two* examples of distereomers.

P.T.O.

(*g*) Write any *one* stereospecific reaction.

(*h*) How to prepare thiophene (write any *one* method) ?

(*i*) Enlist elements of symmetry.

(*j*) Draw structure and give numbering style of Acridine.

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

(*a*) Explain CIP system for nomenclature of optical isomers.

(*b*) Write any *five* electrophilic substitution reactions of furan.

(*c*) Write any *four* preparation methods of Indole.

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

(*a*) Explain mechanism of the following reactions :

(*i*) Dakin reaction

(*ii*) Wolff Kishner reduction.

(*b*) Write definition and mechanism of Beckmann's rearrengement reaction.

(*c*) Write any *two* preparation methods of pyrimidine.

(*d*) Classify heterocyclic compounds with example.

(*e*) Explain geometrical isomerism in detail.

(*f*) Write a note on resolution of racemic mixture.

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(*g*) Explain conformational isomerism in *n*-butane with energy profile diagram.

(*h*) Write a note on optical activity.

(*i*) Draw structures of the following compounds :

(*i*) Pyrazole

(*ii*) Isoquinoline

(*iii*) Purine

(*iv*) Oxazole

(*v*) Pyridine.

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