This question paper contains 2 printed pages]

PP—05—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

INDUSTRIAL PHARMACY–I

Paper BP502 T

(Thursday, 28-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) Answer to the point only.

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

1. Answer the following : 10×2=20

(*a*) Define preformulation.

(*b*) Write objectives of tablet coating.

(*c*) What is phase inversion temperature ?

(*d*) Write advantages of aerosol dosage form.

(*e*) Define opthalmic preparation.

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

(*g*) Enlist various pelletization processes.

(*h*) Mention essential requirements of parenterals.

(*i*) What are cosmetics ?

(*j*) Mention types of compute scaling.

P.T.O.

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

(*a*) Describe defects of compressed tablets along with remedies.

(*b*) Write various quality control tests of capsules.

(*c*) Define parenterals. Describe production facilities, controls and aseptic processing.

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

(*a*) Write evaluation test of aerosols.

(*b*) Mention about functions and importance of container-closures.

(*c*) Describe process of soft capsule manufacturing.

(*d*) Describe various quality control tests of parenterals.

(*e*) Write importance of zeta potential in stability of suspension.

(*f*) Describe BCS classification of drugs.

(*g*) Describe stability problems of emulsion.

(*h*) Write a note on 'Film-Coating' of tablets.

(*i*) Describe various formulation considerations of opthalmic preparations.

9AC9C7641A35D8F0396AE4D5E275095E

This question paper contains 3 printed pages]

PP—01—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

MEDICINAL CHEMISTRY

Paper-II

(Tuesday, 26-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

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

(*iii*) Draw structures wherever necessary.

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

(*a*) Draw any *one* structure of purine containing antimetabolite agent.

(*b*) What are vasodilators ? Draw the structure of any *one* drug from this class.

(*c*) Draw the structure of diphenhydramine and give its IUPAC name.

(*d*) Outline the synthesis of ISDN.

(*e*) Define local anesthetics. Give the therapeutic uses of lignocaine.

(*f*) Explain the chemistry of sulfonylureas.

P.T.O.

(*g*) Draw the structure of any *one* drug containing estrane and pregnane nuclei.

(*h*) Define anti-thyroid drugs. Classify with a suitable example.

(*i*) Write a brief note on Diethylstilbestrol (DES).

(*j*) Give the difference between cardenolides and butadienolides.

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

(*a*) Explain the nomenclature and stereochemistry of steroids.

(*b*) What are antihypertensive agents ? Classify with at least *one* structure from each class.

(*c*) Explain antihistaminic agents in detail. Give the SAR of H_1 & H_2 receptor antagonist.

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

(*a*) Discuss the chemistry and SAR of Cardiac Glycosides.

(*b*) Outline the schematic synthetic route of :

(*i*) Tolbutamide

(*ii*) Dibucaine.

(*c*) What are antineoplastic agents ? Classify with at least *one* structure from each class.

(*d*) Explain the SAR of Diuretics.

309CBL773807C22D23F87371AC69121A

(e) Write a brief note on oral contraceptives. Draw the structure of Norgestrel.

(f) Outline the synthetic route of :

(i) Warfarine

(ii) Furosemide.

(g) Explain the chemistry and SAR of proton pump inhibitors.

(h) What are arrhythmic drugs ? Explain MOA of each class.

(i) Draw the structure of the following drugs with its IUPAC name :

(i) Procaine

(ii) Metformin

(iii) Testosterone

(iv) Chlorothiazide

(v) Nifedipine.

309CBE773807C22D23F87371AC69121A

This question paper contains 2 printed pages]

PP—17—2023

FACULTY OF PHARMACEUTICAL SCIENCE

B. Pharm. (Fifth Semester) EXAMINATION

JANUARY, 2024

PHARMACEUTICAL JURISPRUDENCE

(Thursday, 04-01-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 Hours *Maximum Marks—75*

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

(*ii*) Answer to the point only.

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

1. Solve the following : 10×2=20

(*a*) Define Drug as per D & C Act, 1940.

(*b*) Define manufacture as per D & C Act, 1940.

(*c*) Give objective of Pharmacy Act, 1948.

(*d*) Enlist *four* narcotic drug and psychotropic substances.

(*e*) Define patent.

(*f*) Give types of patent.

(*g*) Differentiate between law and ethics.

(*h*) Name the places for termination of pregnancies.

(*i*) Define Copyright.

(*j*) What is Public Information officer ?

P.T.O.

E46E001FC4A778805E2AAE00756D7F1A

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

(*a*) Give offences and penalties under Narcotic drugs and psychotropic substances Act.

(*b*) Give the constitution and function of Pharmacy Council of India.

(*c*) Explain in brief about schedule M.

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

(*a*) Explain in brief about duties of Drug Inspector.

(*b*) Write a note on pharmacist register.

(*c*) Give the requirement of non-bonded laboratory.

(*d*) Explain in brief about ethics of Pharmacist in relation to his Job.

(*e*) Explain opium and coca derivative.

(*f*) Give the duty and functions of Govt. analyst.

(*g*) Give the pre-independance picture of Pharmacy in India.

(*h*) Give the functions of animal welfare board of India.

(*i*) Explain in detail about schedule N.

E46E001FC4A778805E2AAE00756D7F1A

This question paper contains 2 printed pages]

PP—13—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Fifth Semester) EXAMINATION

JANUARY, 2024

PHARMACOGNOSY AND PHYTOCHEMISTRY

Paper–II

(Tuesday, 02-01-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Answer to the point only.

(*iii*) Draw a neat labelled diagrams wherever necessary.

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

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

(*a*) Define Tannins and Carotenoids.

(*b*) Give the significance of shikmic acid pathway.

(*c*) Define radioactive isotope with *two* examples.

(*d*) Define extraction. Enlist any *four* types of extraction techniques.

(*e*) Write chemical constituents of mentha and pterocarpus.

(*f*) Write application of TLC.

(*g*) Write chemical structure of caffeine and reserpine.

(*h*) Give the biological source and chemical constituents of fennel.

(*i*) Draw neat labelled diagram of T.S. of coriander.

(*j*) Write general identification tests for Tannins.

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

(*a*) Explain industrial method of production and estimation of sennoside and vincristine.

(*b*) Discuss amino acid pathway in detail.

(*c*) Write the pharmacognostical study of Senna.

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

(*a*) Give the botanical source and chemical constituents of aloes and tea.

(*b*) Write the method of isolation and estimation of curcumin.

(*c*) Write the applications of GC and HPLC in detail.

(*d*) Write the morphology and microscopy of Digitalis.

(*e*) Describe utilization of radioactive isotope in cardiovascular diseases.

(*f*) Write the isolation and estimation of Glycyrrhetinic acid.

(*g*) Give the biological source, chemical constituents, uses and adulterants of clove.

(*h*) Explain the method of isolation and estimation of quinine.

(*i*) Explain maceration and percolation technique with suitable example.

78E4C929DD15C173EB1DE963A347D7E5

This question paper contains 2 printed pages]

PP—09—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharm. (Fifth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

PHARMACOLOGY

Paper–II

(Saturday, 30-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Answer to the point only.

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

1. Answer the following : 10×2=20

(*a*) Define Fibrinolytics and antiplatelet drugs.

(*b*) Write the mechanism of actions of Acetazolamide.

(*c*) Define autocoids and mention its *two* examples.

(*d*) Write the MOA of Ondansetron.

(*e*) Classify the drugs used in the treatment of Gout.

(*f*) Write the therapeutic uses and MOA of Vasopressin.

(*g*) Mention the hormones secreted by pituitary glands.

(*h*) Write the role of Vitamin D and calcitonin.

(*i*) Write the therapeutic uses of captopril.

(*j*) Write the mechanism of action of Simvastatin.

P.T.O.

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

(*a*) Define and classify antihypertensive agents. Write pharmacology of calcium channel blockers.

(*b*) Write the principles and applications of Bioassy. Explain the bioassay of Insulin.

(*c*) Classify oral hypoglycemic agents and write pharmacology of Insulin.

3. Answer the following : 7×5=35

(*a*) Write the pharmacology of estrogen.

(*b*) Classify NSAID and write therapeutic uses of Aspirin.

(*c*) Write the pharmacological account of Nitroglycerine.

(*d*) Define and classify diuretics and write the MOA and therapeutic uses of loop diuretics.

(*e*) Write pharmacology of Histamine.

(*f*) Write pharmacological account of Digitalis.

(*g*) Write a short note on ACE inhibitors.

(*h*) Explain the MOA and pharmacological effects of glucocorticoids.

(*i*) Classify antirheumatic drugs and write pharmacology of Methotrexate.

DF08F75690F4CF209819E5CB2DD6E12D

This question paper contains 3 printed pages]

PP—03—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

MEDICINAL CHEMISTRY-III

(Wednesday, 27-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Draw structure, reactions wherever necessary.

1. Solve the following : 10×2=20

(*a*) What are tetracycline antibiotics ?

(*b*) Enlist the steps involved in preparation and purification in antibiotics.

(*c*) What are N1 and N4 substituted sulphonamides ?

(*d*) Name and draw heterocyclic ring present in :

(*i*) Nitrofurantoin

(*ii*) Pyrimethamine.

(*e*) Write a note on macrolide antibiotics.

(*f*) Define lead molecule and pharmacophore.

P.T.O.

(*g*) Name the target receptor for quinolone and chloroquine.

(*h*) Give structure and IUPAC name of dapsone.

(*i*) Enlist any *four* drugs that bind to ribosomal cell wall.

(*j*) Write chemical category of.

(*i*) Amphoterecin B.

(*ii*) Proguanil.

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

(*a*) What are β–lactum antibiotics ? Write chemical classification of β–lactums with at least *one* structure from each class. Explain the SAR of penicillin.

(*b*) Write chemical classification of antifungal drugs. write synthesis of tolnaftate.

(*c*) Explain chemistry , SAR and MOA of quinolones .

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

(*a*) Write structure, IUPAC name and MOA of metronidazole.

(*b*) Enlist different physico-chemical parameters related to QSAR. Explain any *two*.

14445558ABC43A011FA301962268610D

(c) Write chemical classification of antiviral drugs with at least *one* structure from each class.

(d) What are anthemintic drugs ? Write syntheris of Mebendazole.

(e) Write chemical classification of antimalarial drugs with suitabe structure.

(f) Write a note on combinational chemistry.

(g) Write a note on macrolide antibiotics.

(h) Explain the SAR of tetracycline.

(i) Write classification of Anti-TB drugs. Enlist target receptor for each category.

This question paper contains 2 printed pages]

PP—07—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

PHARMACOLOGY

Paper–III (BP-602T)

(Friday, 29-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Answer to the point only.

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

1. Answer the following : 10×2=20

(*a*) Define Asthma. Give its types.

(*b*) What are anti-diarrheal drug ? Give its examples.

(*c*) Write cases in which emetics are contraindicated.

(*d*) Define peptic ulcer. Write its types.

(*e*) What is respiratory stimulants ? Give its examples.

(*f*) What are emetics and anti-emetics ? Give its examples.

(*g*) What is drug resistance ?

(*h*) Write therapeutics uses of Ranitidine.

(*i*) Write mechanism of action and uses of Sulphonamides.

(*j*) What is the source of penicillin and streptomycin ?

P.T.O.

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

(*a*) Define antibiotics. Classify antibiotics on the basis of mechanism of action. Discuss pharmacology of penicillin.

(*b*) What are antitubercular agents ? Classify it with suitable example. Write pharmacology of INH (Isoniazide).

(*c*) What are anti-leprotic agents ? Classify it with suitable example. Explain pharmacology of dapsone.

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

(*a*) Define and classify anti-asthmatic drugs. Write pharmacology of Salbutamol.

(*b*) Define and classify purgatives. Write therapeutic uses of purgatives.

(*c*) What are antitussive drugs ? Write pharmacology of Codeine.

(*d*) Explain in detail pharmacology of Sulphonamides.

(*e*) Discuss pharmacology of chloramphenicol.

(*f*) What are antiviral agents ? Explain pharmacology of Zidovudine.

(*g*) Explain the pharmacology of tetracycline.

(*h*) Discuss various general principles of treatment of poisoning.

(*i*) Write pharmacotherapy of tuberculosis.

This question paper contains 2 printed pages]

PP—11—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Sixth Semester) EXAMINATION

JANUARY, 2024

HERBAL DRUG TECHNOLOGY

Paper–(BP-603T)

(Monday, 01-01-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Answer to the point only.

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

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

1. Solve the following : 10×2=20

(*a*) Define herb and herbal medicine.

(*b*) Define biopesticide with example.

(*c*) Define bhasma. Enlist *four* characteristics of bhasma.

(*d*) Write the biological source and uses of Ginseng.

(*e*) What is drug interaction ? Classify it.

(*f*) What are antioxidants ? Give examples.

(*g*) Define patent. Enlist the conditions for patent grant.

(*h*) Enlist any *four* industries involved in herbal medicine manufacturing.

(*i*) Write the biological source and marketed formulations of fenugreek.

(*j*) Enlist *four* herbal drugs used in hair care preparations.

P.T.O.

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

(*a*) Discuss the role of neutraceuticals used in prevention of Diabetes and Cancer.

(*b*) Discuss general requirements, infrastructural requirements, working space, storage area, equipments, SOP, health and hygiene for manufacturing of ASU drugs.

(*c*) Discuss WHO guidelines for assessment and stability testing of herbal drugs.

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

(*a*) Discuss method of preparation, evaluation and storage for Asava.

(*b*) Discuss primary and secondary processing of raw herbal material.

(*c*) Write chemical constituents and uses of Ginger, Fenugreek and Ashwagandha.

(*d*) Discuss the possible herb-drug and herb-food interactions of Ginkobiloba.

(*e*) Write the principle of Ayurveda and Unani system of medicine.

(*f*) Discuss the case study of Neem.

(*g*) Discuss the present and future scope of herbal drug industry.

(*h*) What are natural excipients ? Classify it with example.

(*i*) Describe process of preparation of phytosomes.

3564192C60C540B03A2807A9D28031EA

This question paper contains 2 printed pages]

PP—15—2023

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

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

JANUARY, 2024

BIOPHARMACEUTICS AND PHARMACOKINETICS

(BP-604T)

(Wednesday, 03-01-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

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

(*ii*) Answer to the point only.

1. Answer the following : 10×2=20

(*i*) Define Bioavailability and Bioequivalence.

(*ii*) Enlist *three* methods which are used to define the K_{max} and V_{max}.

(*iii*) What is dosage regimen ?

(*iv*) Define Biopharmaceutics and Pharmacokinetics.

(*v*) Give applications of bioequivalence study.

(*vi*) Differentiate between active and passive form of drug absorption.

(*vii*) What is meant by therapeutic equivalence ?

(*viii*) What is Glomerular filtration rate ?

(*ix*) Enlist factors affecting protein drug binding.

(*x*) Enlist any *three* major factors which affect tissue permeability.

P.T.O.

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

(*a*) What are compartment model ? Give its advantages and disadvantages.

(*b*) Explain physicochemical factors affecting drug absorption.

(*c*) Discuss methods of measuring bioavailiability.

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

(*i*) Explain caternary model along with its advantages and disadvantages.

(*ii*) What are applications of Renal clearance ?

(*iii*) Describe physiological modelling in detail.

(*iv*) Explain apparent volume of drug distribution in detail.

(*v*) Write a note on in vitro drug disolution model.

(*vi*) Explain one compartment open model extravascular administration.

(*vii*) Explain various factors causing non-linearity.

(*viii*) Explain open and closed models.

(*ix*) Elaborate loading and maintenance dose in detail.

CADFC176CD987EDAE149CA8EDDA08C6B

This question paper contains 2 printed pages]

PP—19—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharm. (VI Semester) EXAMINATION

JANUARY, 2024

PHARMACEUTICAL BIOTECHNOLOGY

Paper BP605T

(Friday, 5-1-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—Three Hours *Maximum Marks*—75

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

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

1. *All* questions are compulsory : 10×2=20

(*a*) Define Biotechnology.

(*b*) What is enzyme immobilisation ?

(*c*) Define protein engineering.

(*d*) Give applications of Biosensor.

(*e*) Define vectors.

(*f*) What is meant by vaccine ?

(*g*) Define humoral and cellular immunity.

(*h*) Give structure of MHC.

(*i*) Define hypersensitivity reactions.

(*j*) Give types of mutation.

P.T.O.

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

(*a*) Describe in detail fermentors of large scale with its diagrams.

(*b*) Describe in detail hybridoma technology and its applications.

(*c*) Describe in detail R-DNA technology and its applications.

3. Solve any *seven* : 7×5=35

(*a*) Give basic principles of genetic engineering.

(*b*) Give a brief introduction of PCR.

(*c*) Draw a neat labelled diagram of immunoglobulin.

(*d*) Describe in detail storage condition and stability of official vaccine.

(*e*) Describe in brief about blood products and plasma substitutes.

(*f*) Define Microbial Biotransformation and give its applications.

(*g*) Explain difference between Eukaryotes and Prokaryotes.

(*h*) Explain in detail production of penicillin.

(*i*) Explain in brief immune suppression.

47C1CE79EC239B34150EA0D5D8EAD543

This question paper contains 2 printed pages]

PP—26—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

JANUARY, 2024

PHARMACEUTICAL QUALITY ASSURANCE

Paper BP606T

(Monday, 8-1-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—Three Hours *Maximum Marks—75*

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

(*ii*) Answer to the point only.

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

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

(*a*) What do you mean by IPQC ?

(*b*) Write the responsibilities of head of quality assurance.

(*c*) What are the objectives of ICH ?

(*d*) Write vision and mission of NABL.

(*e*) What do you mean by HVAC System ?

(*f*) Write the functions of packaging.

(*g*) Write in detail product recall procedure.

(*h*) Write importance of documentation in Pharmaceutical Industry.

(*i*) Write contents of Reports and Documents.

(*j*) What is Installation Qualification ?

P.T.O.

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

(*a*) Explain importance and general principles of Analytical Method Validation.

(*b*) Discuss in detail subpart D, F and G of good laboratory practices.

(*c*) Explain steps in ISO 14000 registration process.

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

(*a*) Write full process of NABL accreditation.

(*b*) Describe elements of Total Quality Management.

(*c*) Describe in detail utilities and maintenance of sterile areas.

(*d*) Write in detail about 'Handling of return good and waste disposal'.

(*e*) Describe in detail "Good Warehousing Practice".

(*f*) Comment on 'Batch Formula Record' and 'Standard Operating Procedure'.

(*g*) Describe principle, scope and types of validation.

(*h*) Explain design, construction and plant layout of premises of pharmaceutical industry.

(*i*) Describe quality control test of rubber closure.

5E5E75324E50788F08014368F4639B39