Total No. of Questions : 6] **[Total No. of Pages :1**

P2006

[3757] - 102

M. Pharmacy

RESEARCH METHODOLOGY (M - II)

(2008 Pattern) (Sem. - I)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***Answer any two questions from Section I and any two questions from Section II.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***

SECTION - I

Q1) What is the meaning of research. Give the detailed account of basic, applied and clinical research along with merits and demerits. **[20]**

Q2) What is documentation. Discuss the different types of documentation. Add a note on importance of literature survey in research. **[20]**

Q3) a) What is interpretation of data. Give the need and importance of interpretation of data. **[10]**

b) Discuss the different forms of questionnaire. Give its advantages and disadvantages. **[10]**

SECTION - II

Q4) a) Discuss in detail about patent system in India. **[10]**

b) Explain the importance of poster, gesture, eye contact and expressions in oral presentation. **[10]**

Q5) Why protection is needed on intellectual property. Give the detailed account of historical development of concept of intellectual property rights. **[20]**

Q6) Write notes on any two of the following : **[20]**

a) Sources for procurement of research grants.

b) Trademark designs and copyrights.

c) Clinical trials.

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Total No. of Questions : 6] **[Total No. of Pages :1**

P2007

[3757] - 103
M. Pharmacy
ADVANCED PHARMACEUTICS - I
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***Answer 2 questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Elaborate the preformulation studies of conventional tablets. **[20]**

Q2) Describe the concept of stability of pharmaceuticals with special reference to the physical instabilities and evaluation methods therein. **[20]**

Q3) Give an overview of pharmaceutical excipients and discuss the factors affecting their selection. **[20]**

SECTION - II

Q4) Explain the drug release modeling through polymer matrix and laminates. **[20]**

Q5) Give classification of optimization methods. **[20]**

Q6) Write short notes (Any two) : **[20]**

a) Documentation concepts of statistical quality control.

b) Dissolution models.

c) Methods of microencapsulation.

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Total No. of Questions : 8] **[Total No. of Pages :2**

P2008

[3757] - 104

M. Pharm.

ADVANCED PHARMACEUTICAL CHEMISTRY (M-II-1)

(2008 Pattern) (Sem. - I)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***Question No. 1 and 5 are compulsory. Out of the remaining attempt any two questions from each section I and section II.***
2) ***Write answer to section I and section II in separate answer book.***

SECTION - I

Q1) What are chiral drugs? Explain how the chirality of medicinal agents affects the pharmacodynametic and pharmacokinetic properties. **[10]**

Q2) Discuss the mechanism, stereochemistry and applications of Beckmann rearrangement reaction taking example of medicinal agent. **[15]**

Q3) Discuss the mechanism, stereochemistry and applications of Grignard Reaction taking example of medicinal agent. **[15]**

Q4) Write note on any Two : **[15]**

a) Ionic liquids and supercritical liquids.

b) Solvent free reactions by microwave and ultrasound energy.

c) Oppennauer oxidation.

SECTION - II

Q5) What are conformational isomers? Explain with examples how the pharmacological properties of drugs changes with conformational Isomerism. **[10]**

P.T.O.

Q6) Explain synthone approach of designing drug synthesis. Develop the synthetic route for Ciprofloxacine or Fentanyl using synthone approach. **[15]**

Q7) What are reduction reactions? Explain clemensen reduction. **[15]**

Q8) Write note on : **[15]**

a) Asymmetric synthesis of Atenolol.

b) Allylic bromination.

c) Diazomethane and its synthetic application.

Total No. of Questions : 8] **[Total No. of Pages :2**

P2009

[3757] - 105

M. Pharm.

ADVANCED PHARMACOLOGY - I

(Preclinical Evaluation of Drugs)

(2008 Pattern) (Sem. - I)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***Question no. 1 and 5 are compulsory. Answer any Two questions from the remaining.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Explain in detail various methods of patch clamp technique. Write the advantages and disadvantages of the same. **[10]**

Q2) Discuss the requirement of animal house and records as per the guidelines of CPCSEA. **[15]**

Q3) Explain in detail design, working and applications of ELISA. **[15]**

Q4) Write a note on any two : **[15]**

a) Limitations of Animal Tests.

b) Cell line cross contamination.

c) Radio ligand binding assays and their applications.

SECTION - II

Q5) Discuss the methods for evaluation of Hypoglycemic agents. **[10]**

Q6) Describe the screening of drugs used in treatment of hypertension. **[15]**

P.T.O.

Q7) Write in detail principles, procedures of screening of muscle relaxants. **[15]**

Q8) Write a note on any two : **[15]**

a) Screening of anti-thyroid agents.

b) Screening of CNS stimulants.

c) Methods to test the drugs acting as adrenolytics.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2010

[3757]-106

M.Pharm.

ADVANCED PHARMACOGNOSY - I

(Sem. - I) (2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question No. 1 and 5 are compulsory. Answer any TWO questions from the remaining.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Describe biotic and abiotic elicitors-induced production of secondary metabolites using plant cell culture. **[10]**

Q2) a) What is chemotaxonomy? What are its advantages & limitations over other methods of classifications? Explain the term divergence & convergence. **[7]**

b) Describe the alkaloids as chemotaxonomic marker with suitable examples. **[8]**

Q3) What are the characters of natural products that make them an appropriate material in discovering new drugs? Explain with suitable examples. **[15]**

Q4) Write a note on (Any two): **[15]**

a) Flavoring agents derived from plants.

b) Antraquinones as dying agents.

c) Applications of biopolymers as pharmaceutical excipients.

P.T.O.

SECTION - II

Q5) Write various in vitro & in vivo models used in the evaluation of hypolipidaemic activity with suitable examples. **[10]**

Q6) Enlist techniques used in the study of plant biosynthesis. Describe in detail precursor-product sequence method. **[15]**

Q7) a) Explain the hepatoprotectant role of favonolignans. **[7]**

b) Review the plants having anticancer activity. **[8]**

Q8) Write a note on (any three): **[15]**

a) Flavonoids as anti-inflammatory agents.

b) Role of high throughput screening (HTS) in drug discovery.

c) Psoralen as photosensitizing agent.

d) Camptothecin.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2011

[3757]-108

M. Pharmacy

QUALITY CONTROL AND ASSURANCE OF PHARMACEUTICALS (1)

(Sem. - I) (2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question Nos. 1 and 5 are compulsory. Out of the remaining attempt 2 questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Give the design, cleaning and maintenance of equipments. **[12]**

Q2) What are the GMP guidelines for processing of intermediate and bulk products. **[14]**

Q3) How are the rejected and recovered materials and returned goods managed? **[14]**

Q4) Write short notes on (any two): **[14]**

a) Significance of personnel training.

b) Sanitation of manufacturing premises.

c) Components of Quality Assurance.

P.T.O.

SECTION - II

Q5) Define validation. Give concept of validation and explain building validation. **[12]**

Q6) Explain GMP guidelines for building premises and HVAC in sterile products. **[14]**

Q7) What is the significance of pharmaceutical Manufacturing documentation? Explain in detail batch production and control record. **[14]**

Q8) Write short notes on (any two): **[14]**

a) Quality control of biological products.

b) Equipment validation.

c) Drug Master File.

Total No. of Questions : 6] **[Total No. of Pages : 1**

P2012

[3757]-109
M.Pharm.
PHARMACEUTICAL PLANT DESIGN AND OPERATIONS
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Answer 2 questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Explain the regulatory requirements of Pharma facilities with reference to revised schedule M. **[20]**

Q2) Discuss the design, layout and operational facilities for capsules. **[20]**

Q3) Discuss the design, layout and operational facilities for sterile products powders ready for reconstitution. **[20]**

SECTION - II

Q4) Explain the design and operation of QC lab. **[20]**

Q5) Discuss the design of utility services. **[20]**

Q6) Discuss the designing of plant support services. **[20]**

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2013

[3757]-110

M.Pharm.

BIOPHARMACEUTICS AND PHARMACOKINETICS

(Sem. - I) (2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question No. 1 and 5 are compulsory. Out of the remaining attempt 2 questions from Section I and 2 Questions from Section II.***

2) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Discuss methods for enhancement of bioavailability. **[12]**

Q2) Discuss concept of in-vitro in-vivo correlation and factors affecting. **[14]**

Q3) Discuss bioequivalence study for controlled drug delivery system. **[14]**

Q4) Write short notes on (Any two): **[14]**

a) Models for determination of drug distribution.

b) Blood placental barrier.

c) Approaches to improve drug dissolution.

P.T.O.

SECTION - II

Q5) Two compartment open model. **[12]**

Q6) What are the limitations in calculating K_m and V_{max} by assuming one compartment model and a single capacity-limited process? **[14]**

Q7) Discuss assessment of pharmacokinetic parameters on basis of urinary excretion data and what criteria are necessary for obtaining valid urinary excretion data. **[14]**

Q8) Write short notes on (Any two): **[14]**

a) Method of residuals.

b) Factors affecting distribution of drug.

c) Dosing of drug in renal diseases.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2014

[3757]-111

M.Pharm.

STERILE PRODUCT FORMULATION & TECHNOLOGY

(Sem. - I) (2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question No. 1 and 5 are compulsory. Out of the remaining attempt 2 questions from Section I and 2 Questions from Section II.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Explain additives used in small volume parenterals. Describe in brief manufacturing of dried powders. **[12]**

Q2) Describe formulation of Liposomes. Give its applications in drug delivery systems. **[14]**

Q3) Describe pharmacokinetics of occular products. Explain formulation of opthalmic products. **[14]**

Q4) Write a short note on (Any two): **[14]**

a) Total Parenteral Nutrition.

b) Packaging Materials for Parenterals.

c) Loaded erythrocytes.

P.T.O.

SECTION - II

Q5) Give the layout of Parenteral facilities. Explain FFS and BFS technology for Parenterals. **[12]**

Q6) Describe in detail environmental control parameters in parenteral manufacturing. **[14]**

Q7) Explain factors considered in sterlization process selection and specifications for parenterals with example. **[14]**

Q8) Write short note on (any two): **[14]**

a) Hazards associated with parenteral therapy.

b) GMP guidelines for parenteral manufacturing.

c) Parenteral devices.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2015

[3757] - 114

M.Pharmacy (Sem. - I)

CLINICAL TRIALS (VII)

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question number 1 and 5 are compulsory.***
2) ***Solve any two questions from the remaining in Section - I and Section - II.***
3) ***Figures to the right indicate full marks.***
4) ***Write answers for Section - I and Section - II in separate answer sheets.***

SECTION - I

Q1) Describe roles and responsibilities of various stakeholders of clinical trials. **[10]**

Q2) Discuss concept, organisation and application of bioavailability and bioequivalence in clinical trials. **[15]**

Q3) Enlist various statistical test used in clinical trials. Justify how these test are useful for quality control of clinical trials. **[15]**

Q4) Write a note on (any two) : **[15]**

a) Informed consent.

b) Data analysis in clinical trials.

c) Subject selection criteria.

P.T.O.

SECTION - II

Q5) Explain supervision of ethics with respect to protection of participants. **[10]**

Q6) Discuss role of clinical trial in the development of new drug. **[15]**

Q7) Enlist various regulatory bodies functioning across the globe. Add a note on role of FDA in India. **[15]**

Q8) Write a note on (any two) : **[15]**

a) Terminologies in clinical trials.

b) Inclusion & exclusion criteria.

c) Serious adverse event reports.

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Total No. of Questions : 8] **[Total No. of Pages : 2**

P2016

[3757] - 115

M.Pharm.

SAFETY PHARMACOLOGY

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question number 1 and 5 are compulsory. Out of the remaining attempt any 2 questions from Section - I and 2 questions from Section - II.***
2) ***Answers to the two sections should be written in separate book.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Explain the regulatory requirements of ICH for the new drug safety assessment. **[10]**

Q2) Discuss the importance and principles of safety pharmacology. **[15]**

Q3) Explain various studies for male reproductive toxicity. **[15]**

Q4) Write notes on : **[15]**

a) In vitro & in vivo mutagenesis assay.

b) Study design of occular toxicity.

SECTION - II

Q5) Discuss Periodic Safety Update Reports (PSUR) for marketed drugs. **[10]**

Q6) Explain the typical design of a carcinogenicity study. **[15]**

P.T.O.

Q7) Discuss "Pharmacovigilance planning". **[15]**

Q8) Write a note on : **[15]**

a) Methods of collection of Pharmacovigilance data.

b) Adverse Event (AE) reporting in clinical trial.

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Total No. of Questions : 8] **[Total No. of Pages : 1**

P2017 **[3757]-117**

M.Pharmacy

NATURAL PRODUCTS MANAGEMENT

(2008 Pattern) (Sem. - I)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question no. 1 and 5 are compulsory. Out of the remaining solve any 2 questions from section-I and 2 questions from section-II.***
2) ***Answers to the two sections should be written in separate answer books.***

SECTION - I

Q1) Write an assay on 'Protocol for Quality Control' with respect to natural products. **[10]**

Q2) Discuss mechanization/modernization of herbal/natural products market. Comment on 'Factors affecting demand and supply'. **[15]**

Q3) Write about processing practice of Cocoa and its market in India. **[15]**

Q4) Write about 'Management exercise before farm planning/analysis. **[15]**

SECTION - II

Q5) Write on - Global Regulatory status and future trends of Herbal drugs. **[10]**

Q6) Write about (any three) : **[15]**

a) Challenges of global regulation.
b) Significance of 'trade of nutraceuticals'.
c) Role of pharmacist in oil industries.
d) Agencies involved in medicinal plants promotion process in India.

Q7) Write about various requirements in establishment of an 'Extraction Unit' based on herbs. **[15]**

Q8) Write about cultivation economics/project proposal for any one prioritize species. **[15]**

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Total No. of Questions : 8] **[Total No. of Pages : 2**

P2018 **[3757]-118**

M.Pharm.

MEDICINAL PLANT BIOTECHNOLOGY

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question no. 1 and 5 are compulsory. Out of the remaining attempt 2 questions from section-I and 2 questions from section-II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Describe in detail along with the suitable examples the various types and applications of biotransformation. **[10]**

Q2) Answers the following :

a) Describe in detail along with suitable examples the process and applications of recombinant DNA technology. **[7]**

b) Describe in detail along with suitable examples the hairy root culture and multiple shoot culture along with their applications. **[8]**

Q3) Answers the following :

a) Describe in detail along with suitable examples the various methods and applications of germplasm conservation. **[7]**

b) Describe in detail about the cell cycle. **[8]**

Q4) Write short note on : **[15]**

a) Mutation.

b) Hybridization.

c) Synthetic seed and somaclonal variation.

P.T.O.

SECTION - II

Q5) Describe in detail the use of radioisotopes and molecular markers with special emphasis on Electrophoresis. **[10]**

Q6) Answers the following :

a) Describe with suitable example the chemical mediated gene transfer in plant. **[7]**

b) Enlist various applications of transgenic plant with special emphasis on resistance to herbicide with suitable examples. **[8]**

Q7) Answers the following :

a) Describe in details the types and properties of enzymes. **[7]**

b) Describe in detail the study and applications of plant enzymes along with detail account of Papain. **[8]**

Q8) Write short note on : **[15]**

a) PCR in gene mapping.

b) Molecular maps-RAPD.

c) Edible vaccine.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2019 **[3757]-201**

M.Pharmacy (Sem. - II)
DRUG REGULATORY AFFAIRS (M-3)
(2008 Pattern) (New Course)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question no. 1 and 5 are compulsory. Out of the remaining attempt any 2 questions from each section-I and section-II.***
2) ***Write answer to section-I and section-II in separate answer book.***

SECTION - I

Q1) Write in detail about schedule-U. Particular to be shown in MFG records. **[10]**

Q2) Discuss the following : **[15]**

a) NPPA and its function.

b) The constitution and function of PCI.

Q3) Write in detail about : **[15]**

a) Administrative bodies as per drugs and cosmetics act-1940.

b) Aims. objectives and salient features of consumer protection act.

Q4) Write short notes on (any three) : **[15]**

a) Loan licences.

b) Labeling of medicines.

c) ISO.

d) Narcotic drugs and psychotropic subs act 1985.

SECTION - II

Q5) Write in detail about Good manufacturing practices for premises as per revised schedule-M. **[10]**

Q6) Write in detail about : **[15]**

a) Good laboratory practices.

b) Good clinical practices.

P.T.O.

Q7) a) What is NDA? How it is differ from ANDA? Explain different sections of NDA.

b) Write in brief about scope and objective of IPR Indian pharm.Industry. **[15]**

Q8) Write a short note on (any three) : **[15]**

a) Drug master file.

b) TGA.

c) General notices as per IP.

d) Clinical investigators responsibilities.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2020

[3757] - 202

M.Pharm. (Sem. - II)

FORMULATIONS AND DEVELOPMENT

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question number 1 and 5 are compulsory.***
2) ***Solve any two questions from the remaining in Section - I and Section - II.***
3) ***Figures to the right indicate full marks.***
4) ***Answers to the two sections should be written in separate answer books.***

SECTION - I

Q1) Discuss the concept of pulsatile drug delivery system with its applications. **[10]**

Q2) a) Discuss formulation development of mouth dissolving tablets. **[10]**

b) Explain principle of self microemulsified drug delivery system with example. **[5]**

Q3) Describe the mechanism of mucoadhesion. Give details of various mucoadhesive agents used in Pharmaceutical dosage forms. **[15]**

Q4) Write notes on any three : **[15]**

a) Approaches for design of gastroretentive dosage forms.

b) Colon specific drug delivery.

c) Process automation in tablet packing.

d) Sublingual drug delivery systems.

P.T.O.

SECTION - II

Q5) Elaborate the significance and challenge of dose uniformity and pulmonary deposition from dry powder inhalers. (DPI's) **[10]**

Q6) Give details of selection and evaluation of packaging materials. **[15]**

Q7) Discuss the development of veterinary drug delivery systems on the basis of physicochemical, biopharmaceutical and technical aspects. **[15]**

Q8) Write notes on any three : **[15]**

a) Filling techniques for inhalation aerosols.

b) Nanopharmaceuticals.

c) Multiple emulsions.

d) Transdermal penetration enhancers.

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Total No. of Questions :6] **[Total No. of Pages : 1**

P2021

[3757]-203
M. Pharm.
NOVEL DRUG DELIVERY SYSTEM
(2008 Pattern)

Time :3 Hours] ***[Max. Marks : 80***

Instructions to candidates:

1) ***Answer 2 questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Explain the influence of routes of drug administration on the design of sustained release systems. **[20]**

Q2) Discuss the formulation, fabrication and evaluation of colon targeted drug delivery systems. **[20]**

Q3) Write short notes (any two) : **[2 × 10 = 20]**

a) Long acting contraceptive formulations.

b) Quality control of liposomes.

c) Freeze drying of parenterals.

SECTION - II

Q4) Elaborate on different approaches to target drug delivery to brain. **[20]**

Q5) a) Describe development of ocular controlled drug delivery. **[10]**

b) Give methods of analysis of proteins and peptides. **[10]**

Q6) Write short notes (any two) : **[2 × 10 = 20]**

a) Ex vivo / in vitro evaluation methods for mucoadhesive drug delivery.

b) Resealed erythrocytes.

c) Development of transdermal drug delivery system.

Total No. of Questions : 6] **[Total No. of Pages : 2**

P2022 **[3757]-204**

M.Pharmacy
ADVANCED MEDICINAL CHEMISTRY
(2008 Pattern) (Sem. - II)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Question No. 1 and 4 are compulsory. Out of the remaining attempt any 1 question from section-I and any 1 question from section-II.***
2) ***Answers to the two sections should be written in separate answer sheet.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) a) Write applications of microorganisms in biotransformation of Antibiotics with suitable examples. **[12]**

b) Write a note on Enzyme Immobilisation Techniques. **[8]**

Q2) a) Explain in detail nicotinic acetyl cholinergic receptors. **[10]**

b) Write a detailed note on Opioid receptors. **[10]**

Q3) Write synthetic routes giving detail mechanism for following (any two) :**[20]**

a) Ethinyl Estradiol.

b) Dapsone.

c) Gefitinib.

d) Vitamin B.

SECTION - II

Q4) a) Write in detail the applications of CADD in drug discovery process with examples. **[12]**

b) Explain applications of Gene Therapy. **[8]**

Q5) a) 'Micro-organisms have played crucial role in drug development' justify with suitable examples. **[10]**

b) Sketch out the synthetic strategies for **any one** of the following : **[10]**

i) Ziprasidone.
ii) Fexofenadine.

P.T.O.

Q6) Write short notes on (any two) : **[20]**

a) Anchoring techniques in Combinatorial Chemistry.

b) Coupling Agents in Combinatorial Chemistry.

c) Whole Cell Immobilization.

d) Solution phase Combinatorial Chemistry.

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Total No. of Questions :6] **[Total No. of Pages : 2**

P2023

[3757]-205
M. Pharm.
DRUG DESIGN
(2008 Pattern) (Sem. II)

Time :3 Hours] ***[Max. Marks : 80***

Instructions to candidates:

1) ***Answer any 2 questions from each section.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Figures to the right indicate full marks.***
4) ***All questions carry equal marks.***

SECTION - I

Q1) a) Differentiate between Hansch's Linear Method and Free Wilson Method. **[10]**

b) Discuss Macromolecular perturbation theory with use of examples. **[10]**

Q2) a) Write notes on ANY TWO : **[10]**

i) Principal Component Analysis.

ii) Applications of Cluster Analysis.

iii) Computer Aided Drug Design.

b) Importance of Stereochemistry in drug action. **[10]**

Q3) a) Write application of following methods in drug design : **[10]**

i) Hansch's Analysis.

ii) Fibonacci Search.

b) Discuss applications of Bioisosterism in Drug Design with examples. **[10]**

SECTION - II

Q4) a) Write Applications of Prodrug concept. **[10]**

b) Give importance of Quantum Mechanics and Molecular Mechanics. **[10]**

P.T.O.

Q5) a) Write on various energy minimization methods with applications. **[10]**

b) Discuss applications of Drug Metabolism Studies in Drug Design with examples. **[10]**

Q6) a) Differentiate between contributions of competitive antagonism & noncompetitive antagonism with examples in drug Design. **[10]**

b) Write notes on ANY TWO : **[10]**

i) Conformational Analysis.

ii) Ligand based Drug Design.

iii) Neural Networks.

iv) Analog based and Structure based drug design.

Total No. of Questions :8] **[Total No. of Pages : 1**

P2024

[3757]-206
M. Pharm.
CLINICAL PHARMACOLOGY
(2008 Pattern) (Sem. -II)

Time :3 Hours] ***[Max. Marks : 80***

Instructions to candidates:

1) ***Question number 1 and 5 are compulsory. Out of the remaining. Attempt any 2 Questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate book.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Discuss the principles of therapeutic drug monitoring. **[10]**

Q2) Describe the management of pain. **[15]**

Q3) Explain the pharmacotherapy of cardiac arrhythmia. **[15]**

Q4) Write notes on : **[15]**

a) Responsibilities of Sponsor.

b) Phase 0 and Phase 1 of clinical trial.

SECTION - II

Q5) Discuss immunostimulants. Add a note on various in vitro tests carried out in immunological investigation. **[10]**

Q6) Describe the management of cirrhosis. **[15]**

Q7) Discuss the current concepts in the management of AIDS. **[15]**

Q8) Write a note on : **[15]**

a) Management of COPD.

b) General guidelines for rational use of antibiotics.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2025

[3757]-207
M. Pharmacy
MOLECULAR PHARMACOLOGY
(2008 Pattern) (M-III-4) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Q.1 and Q.5 are compulsory.***
2) ***Solve any two questions from the remaining in Section I and Section II.***
3) ***Figures to the right indicate full marks.***
4) ***Write answers for Section I and Section II in separate answer sheets.***

SECTION - I

Q1) Discuss basic concepts of chronopharmacology and their implications on drug therapy. **[10]**

Q2) Describe ion channel and their modulators for chloride channels. **[15]**

Q3) Enlist various endogenous bioactive molecules. Add a note on endothelium derived vascular substances. **[15]**

Q4) Write a note on (Any two) : **[15]**

a) Serotonin receptors.

b) Cyclic neucleotides.

c) Transgenic mouse.

SECTION - II

Q5) Discuss in detail cellular cytotoxicity. **[10]**

Q6) Describe pharmacology and therapeutic application of reactive oxygen intermediates. **[15]**

P.T.O.

Q7) What do you mean by adhesion therapy? Comment on vascular remodeling. **[15]**

Q8) Write a note on (Any two) : **[15]**

a) Ion channels and their modulators.

b) Opoid receptors.

c) Human genome mapping.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2026

[3757]-208
M. Pharm. (Pharmacognosy)
PHYTOCHEMISTRY AND PHYTOPHARMACEUTICALS
(2008 Pattern) (Sem. - II)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Q. No.1 and 5 are compulsory. Attempt any two questions from the remaining for Section I and Section II each.***
2) ***Figures to the right indicate full marks.***
3) ***Answers for two sections should be written in two separate answer sheets.***

SECTION - I

Q1) Comment on the role of flavonoids in herbal drug research. Explain how spectroscopic and chromatographic techniques can be utilized in their evaluation. Support your answer with atleast two suitable examples. **[10]**

Q2) a) Describe in details method of extraction, isolation, characterization and structural illucidation (Instrumental) of - Sennosides or Morphine. **[7.5]**

b) Write an elaborate account on chemical and pharmacological profile of any one of the following : **[7.5]**

i) Ergometrine.
ii) Digoxin.

Q3) What do you understand by term standardization. Why is it essential in herbal drug industry? Explain with reference to following phytopharmaceuticals.**[15]**

a) Andrographolides.

b) Curcumin.

Q4) Write note on the following (any two) : **[15]**

a) Chemical profile of saponine glycosides.

b) Taxol as anticancer drug.

c) Importance of Gingerol in Pharma industry.

P.T.O.

SECTION - II

Q5) Enlist various parameters for assessment of herbal drugs as recommended by WHO. Write principle, procedure and significance of the following. **[10]**

a) Determination of Hemolytic Index.

b) Determination of Tannin Conent.

Q6) a) What are various processes and equipments involved in preparation of herbal extract? **[7.5]**

b) Write a note on evaluation of herbal extracts. **[7.5]**

Q7) Describe in details various In Vivo and In vitro screening methods for evaluation of **[15]**

a) Anti-inflammatory and Analgesic activity.

b) Antioxidant Activity.

Q8) Write note on the following (any two) : **[15]**

a) Infrastructure requirement for herbal extraction unit.

b) Parameters involved in evaluation of Antidaibetic activity.

c) Determination of Microbial Count.

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Total No. of Questions : 8] **[Total No. of Pages :2**

P2027

[3757] - 209
M. Pharm.
INDUSTRIAL PHARMACOGNOSY
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***Question Nos. 1 and 5 are compulsory. Out of the remaining attempt 2 questions from Section I and 2 questions from Section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Describe in detail the trends in worldwide trade of medicinal plants. **[10]**

Q2) Describe in detail the role of medicinal plants over the national economy. **[15]**

Q3) Describe with suitable examples the export potential of Indian medicinal herbs. **[15]**

Q4) Write short note on : **[15]**

a) Indian spices and their export potential.

b) Development of herbal medicine industry.

c) Recent amendments applicable for patents of herbal/natural products and processes.

SECTION - II

Q5) Describe in detail the classification of medicinal plant based industry along with suitable examples. **[10]**

Q6) Describe in detail along with suitable examples the infrastructural requirements for different types of herbal industries. **[15]**

P.T.O.

Q7) Describe in detail the medicinal and aromatic plants cultivated in India along with the suitable examples. **[15]**

Q8) Write short note on : **[15]**

a) Indian patent law.

b) Plant breeders right.

c) Plant based institutions involved in work on Indian medicinal and aromatic plants in India.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2028

[3757]-210
M. Pharmacy (Semester - II)
PHARMACEUTICAL VALIDATION
(2008 Pattern) (M-V-3)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Answers to the Section I & Section II to be written in separate answer books.***
2) ***Q.1 & Q.5 are compulsory, attempt remaining 2 questions from Section I and 2 questions from Section II.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) What is Validation Master Plan? Narrate salient features of it mentioning the scope and significance in pharma industry. **[12]**

Q2) How will you validate steam sterilization process of Autoclave? **[14]**

Q3) What are the different methodologies adopted for Cleaning Validation? Devise the procedure for Cleaning Validation of Planetary Mixer. **[14]**

Q4) Write short notes on (any two) : **[14]**

a) Operation Qualification & Performance Qualification.

b) Differentiate between Qualification and Validation.

c) Vendor Certification.

SECTION - II

Q5) How will you carry out UV-Visible Spectrophotometer Validation, describing various parameters and its acceptance limits. **[12]**

Q6) What are the different components of HVAC system? How the system is validated? **[14]**

P.T.O.

Q7) Explain the terms viz Prospective, Concurrent and Retrospective Validation. How will you validate the capsule filling, narrate with process flow diagram. **[14]**

Q8) Write short notes on (any two) : **[14]**

a) Fluid Bed Dryer Validation.

b) Computer System Validation.

c) Aseptic filling Validation by media fill Trials.

Total No. of Questions : 8] **[Total No. of Pages : 2**

P2029

[3757]-211
M. Pharmacy (Semester - II)
QUALITY PLANNING AND ANALYSIS
(2008 Pattern) (M-V-4)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Answers to the Section I & Section II to be written in separate answer books.***
2) ***Q.1 & Q.5 are COMPULSORY, attempt remaining 2 questions from Section I and 2 questions from Section II.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Explain the terms : Quality, Quality Control & Quality Assurance. "Quality can be created by teamwork". Justify and explain the roles played by team member in building the quality. **[12]**

Q2) How will you develop the Quality Culture in manufacturing organization? How will you try to overcome the hurdle by the members who are resistance to change? **[14]**

Q3) Explain the different Statistics Control Charts. How the derived estimated potential capability of the process is arrived from the process charts? **[14]**

Q4) Write short notes on (any two) : **[14]**

a) Quality Improvement and Cost Reduction.

b) Human relations in Auditing.

c) Motivation.

SECTION - II

Q5) What is Sampling? Enumerate different Sampling plans with merits and demerits. Enlist the characteristics of a good sampling plan. **[12]**

Q6) How will you plan the audit, conduct & report the audit? What is compliance audit? How it is different than the normal audit? **[14]**

P.T.O.

Q7) "Automation is the future wave of improving quality of the product". Justify the statement. **[14]**

Q8) Write short notes on (any two) : **[14]**

a) Difference between inspection and audit.

b) Inspection Accuracy.

c) Technology improvement develops Quality.

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Total No. of Questions : 6] **[Total No. of Pages : 1**

P2030

[3757]-107
M. Pharm. (Sem. - I)
ADVANCED QUALITY ASSURANCE TECHNIQUES - I
(2008 Pattern) (Theory)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Solve any two questions from Section I and two questions from Section II.***
2) ***All questions carry equal marks.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Discuss how validation play important role in pharmaceutical manufacturing and explain various steps involved in validation of equipments with reference to dry sterile powder blending. **[20]**

Q2) Explain the following components with respect to the equipment design, size, location and construction. **[20]**

Q3) a) Steps in environmental protection.

b) Packaging materials. **[20]**

SECTION - II

Q4) a) Plant level documentation.

b) IPQC tests for parentral products.

[20]

Q5) Write an essay on building facilities for pharmaceutical manufacturing. **[20]**

Q6) Explain how personnel is most important machine in pharmaceutical industry. **[20]**

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Total No. of Questions : 6] **[Total No. of Pages : 2**

P2031 **[3757]-101**

M.Pharmacy

ADVANCED ANALYTICAL TECHNIQUES

(2008 Pattern) (Sem. - I)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Answer any two questions from each section.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) a) Explain the principle of quadrature detector for FTNMR. **[6]**

b) What are the sources of band broadening in 13C spectra of solids? How are lines narrowed so that high resolution spectra can be obtained? **[6]**

c) Explain working of michelson's interfero meter. **[8]**

Q2) a) Discuss fragmentation pattern of alcohol and alkanes in mass spectroscopy. **[10]**

b) Explain in detail mid-infrared absorption spectrometry. **[10]**

Q3) a) Write a note on various detectors used in HPLC. **[5]**

b) Explain principle and application of ESR. **[10]**

c) Describe gaseous field ionization and description field ionization sources in mass spectroscopy. **[5]**

SECTION - II

Q4) a) Give application of supercritical fluid chromatography. **[6]**

b) Explain principle and instrumentation of ion exchange chromatography. **[8]**

c) Write note on UPLC. **[6]**

P.T.O.

Q5) a) Discuss instrumentation and application of powder x-ray diffraction studies. **[10]**

b) Discuss application of DSC. **[6]**

c) Write note on isothermal titration. **[4]**

Q6) a) Explain principle and applications of differential thermal analysis. **[12]**

b) Write note on GC detectors. **[8]**

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Total No. of Questions : 12] **[Total No. of Pages : 2**

P2032

[3757] - 116
M.Pharm.
TRADITIONAL SYSTEMS OF MEDICINE & AYURVEDIC FORMULATIONS
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***This question paper consists of two parts : Section - I and Section - II and carries a total of 80 Marks.***
2) ***Use two separate answer books for the Section - I & Section - II.***
3) ***Section - I carries 6 questions of 10 marks each. Answer any four questions in Section - I.***
4) ***Section - II carries 6 questions of 10 marks each. Answer any four questions in Section - II.***
5) ***Enter the question number clearly in the margin of the answer book beside each of your answer.***

SECTION - I

Q1) Explain the following statement "Ethnopharmacognosy is a sub-field of ethnobotany or medical anthropology that deals with the study of traditional medicines : not only those that have relevant written sources (e.g. Traditional Chinese Medicine, Ayurveda) but especially those, whose knowledge and practices have been orally transmitted over the centuries". **[10]**

OR

What is Ethnopharmacognosy? How are healing practices and knowledge affected by habital change, species loss and the cultivation and hybridization of plants?

Q2) What is Unani system of medicine? Write Etymology and history of Unani system of medicine. Write a brief note on Unani medicines in Asia. **[10]**

Q3) Write down the differences between Ayurvedic medicine and homeopathic medicines with respect to History, Philosophy and Preparation of Medicine. **[10]**

P.T.O.

Q4) "The use of toxic herbs and of toxic metals and minerals as ingredients in traditional Ayurvedic treatments is a major safety concern". Explain the above statement. **[10]**

Q5) Enlist five drugs used in Ayurvedic medicine and homeopathic medicines. Give their comparative account. **[10]**

Q6) Write short note on any two : **[10]**

a) Acupuncture as a Chinese system of Medicine and its safety.
b) The aim and types of Rasayana in a Ayurvedic system of medicine.
c) Homeopathic dilutions.

SECTION - II

Q7) Define Arka. Write its method of preparation. What are characteristics of Arka? Enlist four examples of Arka along with their important therapeutic uses. **[10]**

Q8) Define Avaleha. Write its method of preparation. What are characteristics of Avaleha? Enlist four examples of Avaleha along with their important therapeutic uses. **[10]**

Q9) What is Guggulu? Explain the process of sodhana. What are the characteristics of Sodhita Guggulu? How Sodhita Guggulu is stored and preserved? **[10]**

Q10) Write a brief note on standardization of Ayurvedic dosage forms using physical methods. **[10]**

Q11) Write a brief note on Ayurvedic Cosmetics formulations. **[10]**

Q12) Write short note on any two : **[10]**

a) Heavy metals in Ayurvedic preparations.
b) General method of preparation of *Taila*.
c) Asava.

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