Total No. of Questions : 4]

SEAT No. :

P4972

[Total No. of Pages : 1

[5050]-101
M. Pharmacy (Semester - I)
ADVANCED ANALYTICAL TECHNIQUES
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Discuss theory, instrumentation and applications of double beam UV-VIS spectrophotometer. **[10]**

Q2) Attempt any three questions form following: **[15]**

a) Write about resolution in Mass spectroscopy.

b) Differentiate NMR of Ethyl acetate and Methyl acetate.

c) Write principle and applications of LC-MS.

d) Write about principle, instrumentation and applications of Scanning Electron Microscope (SEM)

Q3) Write short notes on (any three): **[15]**

a) Shielding and Deshielding of protons.

b) ICH guidelines for validation of analytical methods.

c) Spin-spin coupling.

d) Detectors used in IR Spectroscopy.

Q4) Elucidate the structure of compound from following data. **[10]**

Mol wt = 158

UV = λ_{max} 225 nm, ε_{max} 50

IR = 3077–2857, 1828 1757, 1457 cm^{-1}

NMR = δ2.7 (septet, J = 6.7cps, 6.4 squares),

δ1.2 (doublet, J = 6.7 cps, 37.2 squares),

OR

Write Principle, instrumentation and applications of HPLC. **[10]**

○○○

Total No. of Questions : 4]

P4973

SEAT No. :

[Total No. of Pages : 1

[5050]-102
M. Pharmacy (Semester - I)
RESEARCH METHODOLOGY
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) What is oral presentation? Explain importance of posture, gestures, eye contact, and facial expression in oral presentation. **[10]**

Q2) Solve any three the following questions: **[15]**

a) Differentiate between basic research and patent oriented research.

b) Explian basic principle and different type of experimental design.

c) Explian the cost management in research.

d) Explian research organization and its types.

Q3) Write a short note on (any three): **[15]**

a) Chi square test (X^2).

b) Literature survey and documentation.

c) Descriptive Data Analysis.

d) Decsision marking.

Q4) Describe ANOVA test and it's importance. **[10]**

OR

Describe in brief research report and thesis writing.

○○○

Total No. of Questions : 4]

P4974

SEAT No. :

[Total No. of Pages : 1

[5050]-103
M. Pharmacy (Semester - I)
ADVANCED PHARMACEUTICS
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Draw well labeled diagrams wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) Concept of preformulation. Explain in brief preformulation studies of oral liquids. **[10]**

Q2) Solve any three. **[15]**

a) Degradation pathways.

b) Evaluation of microspheres.

c) Superdisintegrants.

d) Biodegradable polymers.

Q3) Write short notes on (any three): **[15]**

a) Concept and importance of dissolution studies.

b) Classification of optimization methods.

c) Concept and objectives of stability of pharmaceuticals.

d) Air suspension technique of microencapsulation.

Q4) Need for optimization. Explain in detail optimization by factorial design. **[10]**

OR

Define validation. List down the quality control tests for pharmaceutical suspensions.

○○○

Total No. of Questions : 4]

P4975

SEAT No. :

[Total No. of Pages : 1

[5050]-104
M. Pharmacy (Semester - I)
ADVANCED PHARMACEUTICAL CHEMISTRY
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) What is recemic mixtures. Explain different methods of resolution of recemic mixtures. **[10]**

Q2) Solve any three. **[15]**

a) What is Sterospecificity and Steroselectivity give suitable examples.

b) Explain Hydrogenation.

c) Discuss the mechanism, stereochemistry and applications of Wagner Meerwein Rearrangement.

d) Explain Brich reduction.

Q3) Write short note on any three: **[15]**

a) Grignard Reaction.

b) Wolff Rearrangement.

c) Use of diazomethane and peracids in synthesis.

d) Green chemistry and its applications.

Q4) What is solid phase synthesis? Explain the mechanism of protection deprotection and coupling reaction in solid phase chemistry. **[10]**

OR

What is synthone approach of designing drug synthesis. Develop synthetic route for any two drugs using synthone approach.

○○○

Total No. of Questions : 4]

P4976

SEAT No. :

[Total No. of Pages : 1

[5050]-105
M. Pharmacy (Semester - I)
(Spl. Pharmacology)
ADVANCED PHARMACOLOGY (PRECLINICAL EVALUATION OF DRUGS)
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat labeled diagrams wherever necessary.***

Q1) Explain in detail the composition and functioning of IAEC. **[10]**

Q2) Answer (any three) **[3 × 5 = 15]**

a) OECD guidelines for acute oral toxicity studies.

b) Screening of anti-parkinsonian agents.

c) Discuss the behavioral tests for preclinical evaluation of antidepressants.

d) Discuss the preclinical evaluation of cardiac glycosides.

Q3) Write short notes on (any three): **[3 × 5 = 15]**

a) Bioassay of insulin.

b) Screening of central analgesic activity.

c) Screening of antithyroid agents.

d) Screening of antitussives.

Q4) Discuss the preclinical evaluation of antiulcer agents. **[10]**

OR

Discuss the in vivo methods for evaluation of anti-inflammatory drugs.

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Total No. of Questions : 4]

P4977

SEAT No. :

[Total No. of Pages : 1

[5050]-106
M. Pharmacy (Semester - I)
ADVANCED PHARMACOGNOSY
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All Question are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Explain in detail the construction mechanism for secondary metabolites. **[10]**

Q2) Answer the following (any three) **[15]**

a) Explain in detail Diels Alder Cyclization.

b) Describe in detail Ecological functions of Plant secondary metabolites.

c) Explain merits of Ethnobotanical approach to drug discovery.

d) Elaborate a brief account of HTS with recent case study.

Q3) Short notes (any three): **[15]**

a) Starter group other than acetate for polyketides.

b) Biosynthesis of Coumarins.

c) Vinca alkaloids.

d) Herbal Shampoos.

Q4) Elaborate a detail account of Biosynthetic pathway of Cinnamic acid. **[10]**

OR

Elaborate a detail account of Biosynthesis of Saturated Fatty acids.

○○○

Total No. of Questions : 4]

P4978

SEAT No. :

[Total No. of Pages : 1

[5050]-107
M. Pharmacy (Semester - I)
ADVANCED QUALITY ASSURANCE TECHNIQUES
(cGMP AND DOCUMENTATION)
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Discuss general GMP requirements regarding equipments in pharmaceutical manufacturing unit. **[10]**

Q2) Attempt any three questions from the following: **[15]**

a) Enlist cGMP requirements with respect to lables and printed materials.

b) Write any five components of QA activities in pharmaceutical organization.

c) Enlist components of GMP.

d) Explain the importance of yield calculation at various stages in manufacture.

Q3) Write Short note (any three): **[15]**

a) Plant security.

b) HVAC system.

c) Handling of rejected materials.

d) IPQC

Q4) Elaborate on HACCP methodology. **[10]**

OR

Discuss phases of CAPA.

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Total No. of Questions : 4]

P4979

SEAT No. :

[Total No. of Pages : 1

[5050]-201
M. Pharmacy (Semester - II)
DRUG REGULATORY AFFAIRS
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All Question are compulsory.***
2) ***Figures to the right side indicate full marks.***

Q1) Explain the different sections of NDA. **[10]**

Q2) Solve any three. **[15]**

a) Write the ICH guidelines for the stability testing of pharmaceuticals.

b) Explain the guidelines of GMP audit inspection.

c) Explain the role of IP laws in pharma industry growth.

d) Explain the Trademark filing procedure.

e) Write the case study of Neem plant under intellectual property right and patent.

Q3) Write Short notes (any three): **[15]**

a) Patent system in Europe.

b) GATT.

c) Indian Patent Act 1970.

d) Quality Assurance as a part of GMP.

e) Water system in pharmaceutical plant.

Q4) Solve any one : **[10]**

a) Explain the cGMP requirements related to premises, sanitation and hygiene in pharmaceutical plant.

b) Explain the provision of the act for import licence for testing of drugs and API's.

Total No. of Questions : 4]

P4980

SEAT No. :

[Total No. of Pages : 1

[5050]-202
M. Pharmacy (Semester - II)
FORMULATIONS AND DEVELOPMENT
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Discuss in detail regulatory perspective of selection and evaluation of pharmaceutical packaging materials for conventional dosage forms. **[10]**

Q2) Attempt ANY THREE from following: **[15]**

a) Give ICH Q8 (R2) guidelines for pharmaceutical development.

b) Explain pharmaceutical aspects of solubilisation in nonaqueous systems.

c) Explain formulation concept for mouth dissolving tablet.

d) Discuss on metered dose inhalers.

Q3) Short note (ANY THREE) **[15]**

a) Concept of Quality by Design.

b) Quality assurance tests for aerosol.

c) Emulgels.

d) Quality control & regulatory aspects of veterinary dosage form.

Q4) Discuss in detail on Nutraceuticals. **[10]**

OR

Explain in detail self micro emulsified drug delivery systems.

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Total No. of Questions : 4]

P4981

SEAT No. :

[Total No. of Pages : 1

[5050]-203
M. Pharmacy (Semester - II)
NOVEL DRUG DELIVERY SYSTEMS
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Describe in detail mucosal drug delivery system. **[10]**

Q2) Answer any three: **[15]**

a) Explian the formulation and evaluation for microspheres.

b) What are parenteral implants?

c) Describe the regulatory considerations for novel drug delivery systems.

d) Explain long acting contraceptives.

e) Describe various strategies to enhance the bioavailability of BCS class II drugs.

Q3) Write short notes (any three) **[15]**

a) Formulation of microemulsions.

b) Nanocrystals.

c) Resealed erythrocytes.

d) Design considerations in ocular drug delivery.

e) Stabilization of proteins and peptides.

Q4) Describe about active and passive trageting using particulate carriers. **[10]**

OR

Describe about preparation, characterization and stability of liposomes.

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Total No. of Questions : 4] **SEAT No. :**

P4982 **[Total No. of Pages : 1**

[5050]-204

M. Pharmacy (Pharmaceutical Chemistry)

ADVANCED MEDICINAL CHEMISTRY

(2013 Pattern) (Semester - II) (Theory)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Describe cholinergic and anticholinergic agents. **[10]**

Q2) Attempt any three questions from following : **[15]**

a) Comment on benzodiazepines and barbiturates.

b) Explain aryloxypropanolamines.

c) Highlight 4-aminoquinolines and 8-aminoquinolines as antimalarials.

d) Write synthetic scheme and reaction mechanism for synthesis of fexofenadine.

Q3) Write short notes on (Any Three) : **[15]**

a) Phenylethy lamines and cathecholamines.

b) Alkylating agents.

c) Thiazolidinediones and insulin.

d) Drug used in treatment of Alzheimer's disease.

Q4) Write in detail about anthelmintic agents. **[10]**

OR

Write classification, MOA and SAR of adrenergic agents. **[10]**

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Total No. of Questions : 4]

SEAT No. :

P4983

[Total No. of Pages : 1

[5050]-205

M. Pharm.

DRUG DESIGN M-II-4

(2013 Pattern) (Semester - II) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt all questions.***
2) ***Figures to the right indicate full marks.***

Q1) Write an account of various approaches in drug design. Give an account of 3D QSAR. **[10]**

Q2) Attempt any three questions from following : **[15]**

a) Explain concept of prodrugs with suitable example.

b) Write about importance of partition coefficient in drug design.

c) Give an account of Enzyme inhibition.

d) Write about pharmacophore designing.

Q3) Write about Molecular mechanics and Quantum mechanics in drug design process. **[10]**

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

a) Applications of gene based medicine.

b) Drug metabolism reaction Phase I & Phase II.

c) Explain structure based drug design process.

d) Energy minimization methods in drug design.

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Total No. of Questions : 4] **SEAT No. :**

P4984 **[Total No. of Pages : 1**

[5050]-206

M. Pharm.

CLINICAL PHARMACOLOGY

(2013 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Question number 1 is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Explain in detail pharmacotherapy of diabetes mellitus. **[10]**

Q2) Solve any three :

a) Drug food interactions. **[5]**

b) Therapeutic drug monitoring and its clinical significance. **[5]**

c) Monoclonal antibodies. **[5]**

d) Monitoring of adverse drug reactions. **[5]**

Q3) Write short notes (Any three) :

a) Therapeutic utility of digitalis in arrhythmia. **[5]**

b) Poly (ADP- Ribose) Polymerase. **[5]**

c) Phases of clinical trials. **[5]**

d) Post transplantation drug dose adjustment. **[5]**

Q4) Give a detailed account on management of angina pectoris. **[10]**

OR

Explain in detail pharmacotherapy of hyperlipidemia. **[10]**

✷ ✷ ✷

Total No. of Questions : 4] **SEAT No. :**

P4985 **[Total No. of Pages : 1**

[5050]-207

M. Pharmacy

MOLECULAR PHARMACOLOGY

(2013 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Question number 1 is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Explain the basic concept of gene therapy. Add a note on recent development in treatment of hereditary diseases. **[10]**

Q2) Answer the following (any three) : **[15]**

a) Explain the role of COX-2 modulators in inflammation.

b) Explain the therapeutic implication of antioxidants.

c) Discuss on modulators of Serotonin receptors.

d) Write a note on Neuropeptides

Q3) Write a note on following (Any three) : **[15]**

a) Role of Western Blotting technique in molecular pharmacology.

b) Calcium channel and it's modulators.

c) Low molecular weight heparins.

d) Cyclic nucleotides.

Q4) Define immunopharmacology with emphasis to cellular toxicity. **[10]**

OR

Define and classify receptors. Explain the cellular signaling systems. **[10]**

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Total No. of Questions : 4]

SEAT No. :

P4986

[Total No. of Pages : 2

[5050]-208

M. Pharmacy (Spl. Pharmacognosy)

PHYTOCHEMISTRY AND PHYTOPHARMACEUTICALS

(2013 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Explain principle for separation of phytoconstituents by Chromatographic techniques. Highlight with examples of vasicine and Andrographolide. **[10]**

Q2) Solve **any three** questions from the following : **[15]**

a) Describe extraction and isolation method for Taxol.

b) Elaborate on extraction of Resveratrol by Supercritical fluid extraction technique.

c) Give structural elucidation of Nicotine by spectroscopic data.

d) Comment on pharmacological importance of Ergot alkaloids. Describe the extraction and isolation procedure for Ergometrine from ergot.

Q3) Solve **any three** questions from the following : **[15]**

a) Write a note on Froth Flotation Technique along with its applications.

b) Illustrate how HPLC plays a major role in isolation of Gingerol.

c) Give details of spectroscopic analysis for characterization of Glycerrhizinic Acid.

d) Mention various flavonoids present in green tea. Describe their method of isolation.

P.T.O.

Q4) Enlist various parameters recommended by WHO for strandardization of herbal drugs. **[10]**

Elaborate on :

a) Pesticide Residue.

b) Haemolytic Index.

OR

Describe in details in-Vitro and In-Vivo methods for screening of Anti-diabetic Drugs. **[10]**

Total No. of Questions : 4]

SEAT No. :

P4987

[Total No. of Pages : 1

[5050]-209

M. Pharmacy

PHARMACOGNOSY

(M-IV-4): Industrial Pharmacognosy

(2013 Pattern) (Semester - II) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt all questions.***
2) ***Figures to the right indicate full marks.***

Q1) Elaborate the methods of stabilization of herbal formulation and describe the parameters for stability testing of herbal medicine. **[10]**

Q2) Explain the licensing requirement for the production and sale of herbal drugs in India. **[10]**

Q3) Describe the pharmacokinetic and phacodynamic interaction of herbal drugs. Elaborate the herbal-drug interaction of commonly used herbs. **[10]**

OR

Explain the different ways by which herbal drugs causes toxicity with suitable examples. **[10]**

Q4) Write notes on (Any four) : **[20]**

a) Commercialization of Natural Products in India.

b) Plant breeders right.

c) Global regulatory status of herbal drugs.

d) GMP for production of phytomedicines.

e) Herbs & Herbal products exported from India.

✷ ✷ ✷

Total No. of Questions : 4] **SEAT No. :**

P4988 **[Total No. of Pages : 1**

[5050]-210

M. Pharm.

PHARMACEUTICAL VALIDATION

(2013 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labelled diagrams where necessary.***

Q1) Explain in detail process validation of tablets. **[10]**

Q2) Answer any three of the following : **[15]**

a) Explain equipment validation of fluid bed dryer.

b) Validation of integrated line by media fill test.

c) Explain equipment qualification w.r.t. IQ, OQ, PQ.

d) State protocol for cleaning validation of equipment.

Q3) Write note on (any three) : **[15]**

a) Vendor certification.

b) Discuss parameters of analytical method validation.

c) Give qualification of UV/Visible spectrophotometer.

d) Validation of autoclave.

Q4) Explain validation of Air Handling Systems. **[10]**

OR

Give a detail account of water systems validation.

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Total No. of Questions : 4] **SEAT No. :**

P4989 **[Total No. of Pages : 1**

[5050]-211

M. Pharmacy (Quality Assurance Techniques)

QUALITY PLANNING AND ANALYSIS

(2013 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Define "Quality" and discuss its two dimensions. **[10]**

Q2) Attempt any Three questions from the following : **[15]**

a) What is "project-by-project" approach to act on chronic problems?

b) Define 'control' and list universal sequence of steps to achieve control.

c) State Maslow's list of human needs and associated forms of motivation for quality.

d) What are different phases of six sigma approach?

Q3) Write short notes on (any Three) : **[15]**

a) Error proofing the process.

b) Process capability.

c) Quality Indexes for Acceptance sampling plans.

d) Self control.

Q4) Discuss disposition of non-conforming product. **[10]**

OR

Discuss principles of Quality Audit Program.

✷ ✷ ✷

Total No. of Questions : 4]

SEAT No. :

P4990

[Total No. of Pages : 1

[5050]-212

M. Pharmacy

QUALITY CONTROL AND ASSURANCE OF PHARMACEUTICALS

(2013 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question number 1 is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Drawn well labelled diagrams wherever necessary.***

Q1) Give an account of guidelines for design and implementation of pharmaceutical manufacturing Documentation (PMD) programme. **[10]**

Q2) Attempt any three of the following : **[15]**

a) Explain master validation plan used in typical pharmaceutical organization.

b) Provide you view on sources of contamination and contamination control.

c) What is Regulatory audit? Provide audit questionnaire for Personal & Administration Dept. Internal audit.

d) Describe HVAC system performance qualification.

Q3) Write note on (any three) : **[15]**

a) Revalidation.

b) Quality control of sterile pharmaceuticals.

c) Sterile facility system suitability test/Media fill test.

d) Pharmaceutical Water system validation.

Q4) What are the process validation methods? Describe in detail scope and advantages of validation. **[10]**

OR

Explain your concept of quality management. Provide BPCR check list with its importance.

✷ ✷ ✷

Total No. of Questions : 4] **SEAT No. :**

P4991 **[Total No. of Pages : 1**

[5050]-213

M. Pharmacy

PHARMACEUTICAL PLANT DESIGN AND OPERATIONS

(2013 Pattern) (Semester - I) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Drawn well labelled diagrams wherever necessary.***

Q1) Discuss the design, layout and operational facilities for sterile powder ready for reconstitution. **[10]**

Q2) Attempt ANY THREE from following : **[3 × 5 = 15]**

a) What is effluent? Write importance of effluent treatment.

b) Explain design and operational facilities for liquid oral.

c) Explain operational facilities services and utilities for Tablets.

d) Write in short design of effluent treatment plant.

Q3) Short Note (ANY THREE) : **[3 × 5 = 15]**

a) Design of Q.C. Laboratory.

b) Design and operational facilities for Capsule.

c) Design of compressed air.

d) Design of Water stream.

Q4) Discuss in detail revised schedule M and Factory Act. **[10]**

OR

Discuss design of Pharmaceutical plant support services like security office, scrap yard, garden and horticulture, training centre, administrative block.

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Total No. of Questions : 4]

SEAT No. : ____

P4994

[Total No. of Pages : 1

[5050] - 216
M.Pharmacy
Active Pharmaceutical Ingredients (APIS) Manufacturing Technology
(2013 Pattern) (Semester - I & II)

Time : 3 Hours] ***[Max. Marks :50***

Instructions to the candidates:-

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Discuss about health hazards in manufacturing technology facility. **[10]**

Q2) Attempt any three questions from following : **[15]**

a) Finger and arm protection law.

b) Unit process in synthesis

c) Atmospheric contamination

d) Acylation reaction process

Q3) Write short notes on (Any Three) **[15]**

a) Fluidized bed dryers

b) Detection and sampling

c) Effect of sound and ultrasound

d) Eye protection equipments

Q4) Describe in detail manufacturing process of following drugs with process and instrumentation diagram (any two) **[10]**

a) Adrenaline

b) Aspirin

c) Pentothal sodium

OR

Give a detail account of Noise measuring instruments and effects of sound and ultrasound.

♦♦♦♦

Total No. of Questions : 4]

SEAT No. :

P4996

[Total No. of Pages : 1

[5050] - 218

M.Pharmacy

TRADITIONAL SYSTEM OF MEDICINE AND AYURVEDIC FORMULATIONS

(2013 Pattern) (Semester - I) (Credit System)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:-

1) ***Question No. 1 is compulsory.***
2) ***Figures to the right side indicate full marks.***
3) ***Draw well labelled diagrams must be drawn wherever necessary.***

Q1) Explain Homeopathic system of medicine. Give the theory and basic concept and add a brief note on Diagnosis and treatment of Homeopathic system of medicine. **[10]**

Q2) Answer the following (Any three) **[15]**

a) Explain the theory and basic concept of Chinese system of medicine.

b) Explain the preparation and evaluation methods of Asava and Arishta.

c) Explain the principles of Ayurvedic system of medicine.

d) Give an account of diagnosis and treatment of Unani system of medicine.

Q3) Write short notes (Any Three) **[15]**

a) Rasayana

b) Taila

c) Guggulu

d) Bhasmas

Q4) Enlist five drugs used in Ayurvedic medicine and Chinese medicines and give their comparative account. **[10]**

OR

Explain the evaluation and standardization of Ayurvedic cosmetic formulations.

♦♦♦♦

Total No. of Questions : 4]

SEAT No. : ____

P5002

[Total No. of Pages : 1

[5050]-224

M.Pharmacy (Semester - I & II)

CLINICAL TRIALS

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to right indicate full marks.***
3) ***Draw well labelled diagram wherever necessary.***

Q1) Discuss the role and responsibilities of various stakeholders in clinical trials. **[10]**

Q2) Solve any three : **[15]**

a) Explain the principles of Belmont report.
b) Write the composition and responsibilities of IRB.
c) Write advantages and disadvantages of trial design.
d) Write the principles of ICH GCP guidelines.

Q3) Write Short note on (Any Three). **[15]**

a) NDA and ANDA.
b) Issues in therapeutic drug monitoring.
c) Quality countrol in clinical trials.
d) Data monitoring and computer application in clinical trials.

Q4) Define informed consent. Discuss in brief the significance and contents of informed consent. **[10]**

OR

What is new drug development? Discuss the types and phases of clinical trials.

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Total No. of Questions : 4]

SEAT No. :

P5003

[Total No. of Pages : 1

[5050]-225

M.Pharmacy (Semester - I & II)

Clinical Pharmacokinetics and Pharmacodynamics

(2013 Pattern) (Elective)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates :

1) ***All questions are compulsory***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) What is nonlinearity in Kinetics? How it is detected? Explain the methods for determination of Vmax and Km **[10]**

Q2) Answer any Three of the following : **[15]**

a) Explain the need of individualization with respect to hepatic failure.
b) Explain the significance of half life of drug in elimination.
c) Define clearance. What are the advantages of expressing clearance at an individual organ level?
d) Explain the kinetics of drug-protein binding.

Q3) Write a note on following (any Three) : **[15]**

a) Factors affecting absorption of drug
b) Therapeutic Window
c) Dosage adjustment in renal failure
d) Barriers affecting drug distribution.

Q4) Describe the Wagner-Nelson's method for determination of absorption rate constant. What is the limitation of this method? **[10]**

OR

Describe compartment modeling with its assumption. Add a note on One compartment model.

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Total No. of Questions : 4] **SEAT No. :**

P5004 **[Total No. of Pages : 1**

[5050]-226

M.Pharmacy (Semester - I)

Clinical Immunology & Enzymology

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***Question number 1 is compulsory.***
2) ***Figure to the right indicates full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Describe the diagnostic and therapeutic value of enzymes with suitable examples. **[10]**

Q2) Solve any three **[15]**

a) Describe the tumor immunotherapy
b) Define immunity. Elaborate on its different types.
c) What is hybridoma? Explain its applications in immunology
d) Elaborate on enzyme kinetics.

Q3) Write short notes (Any three) **[15]**

a) Antibody dependent cell cytotoxicity
b) Congenital immunodeficiency
c) Fusion method of Hybridoma
d) Anaphylactic reaction

Q4) Enlist the tumor antigens and add note on immune response to tumors. **[10]**

OR

Describe the various mechanisms of graft rejection. Add a note on clinical manifestations of graft rejection. **[10]**

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Total No. of Questions : 4] **SEAT No. :**

P5005 **[Total No. of Pages : 1**

[5050]-227

M.Pharmacy (Semester - I & II)

Industrial Pharmacy & Production Management

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Describe the plant site selection, layout and organization of pharmaceutical industries. **[10]**

Q2) Answer any three **[3 × 5 = 15]**

a) Explain what is pharmaceutical validation process for various products.
b) What are the typical automation models for solid manufacturing?
c) Explain in detail the mechanical parts of pharmaceutical machinery and equipments
d) Describe in detail the requirements related to manufacture as per the Drugs and Cosmetics Act.

Q3) Write Short Notes (any three) **[3 × 5 = 15]**

a) Vendor development capacity assessment of inventory management
b) Optimization techniques
c) Total quality management and productivity
d) Effluent testing and treatment for pharmaceutical industry

Q4) Explain in details various monitoring and preventive systems for safety against industrial hazards due to fire, electrical and mechanical equipments. **[10]**

OR

Discuss in detail pilot plant scale-up and design for tablet and liquid oral preparations.

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Total No. of Questions : 4]

SEAT No. :

P5006

[Total No. of Pages : 1

[5050]-228

M.Pharmacy (Semester - I & II)

Fermentation Technology

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figure to the right indicates full marks.***
3) ***Draw well labelled diagrams wherever necessary.***

Q1) Explain in detail the operation of a bioreactor by considering following points. **[10]**

a) In-situ sterilisation
b) Aeration
c) Control systems

Q2) Answer the following (any three) **[15]**

a) What is immobilization? Write the importance of enzyme immobilization
b) Explain different techniques used for strain improvement.
c) Explain different factors affecting microbial growth.
d) How will you measure the growth of industrial useful microbes.

Q3) Write a note on (Any three) **[15]**

a) Primary metabolite
b) Fermentation media
c) Protease
d) Production of biopesticides

Q4) Explain different techniques used for screening of industrial important microbes. **[10]**

OR

What is bioreactor? Explain any one continuous bioreactor.

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Total No. of Questions : 4] **SEAT No. :**

P5007 **[Total No. of Pages : 1**

[5050]-229

M.Pharm (Semester - I & II)

PROJECT MANAGEMENT

(2013 Pattern) (Elective)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Explain the term "Project control process" with special emphasis on budgetary control. **[10]**

Q2) Explain the terms involved in project management (Any Three). **[15]**

a) Team development
b) Stake-holder and project manager
c) Project vision.
d) 360^{o} Feedback system

Q3) Write Short-notes on (Any Three). **[15]**

a) Activities considered for strategic management process.
b) Network plan of a project.
c) Risk management vs Project Management
d) Ethics and Building trust in project management

Q4) Contrast and compare the project status report and project audit process. **[10]**

OR

Explain various constraints to be considered for successful management of a pharmaceutical project.

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Total No. of Questions : 4]

SEAT No. :

P5008

[Total No. of Pages : 1

[5050]-230

M.Pharmacy (Semester - I & II)

PHARMACEUTICAL ADMINISTRATION

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Explain the concept of management and administarion. Discuss the management social responsibility and ethics.What are the functions of management? **[10]**

Q2) Solve any three. **[15]**

a) Making organisation effective and developing positive organisation culture.

b) Explain the managerial development process and training.

c) How will you control the overall performance in the organisation?

d) Explain the concept of span of the control.

e) Describe types of plan and steps in planning.

Q3) Write short note on (any three) **[15]**

a) Line and staff concept in organisation.

b) Porcess of decision making.

c) Feedback and feedforward control.

d) Communication process in the organisation

e) Deapertmntalisation.

Q4) Explain the concept of production and operation management. Dsicuss the productivity problems and measurement.How will you control and improve productivity. **[10]**

OR

Explain the role of human factors in managing. Discuss in detail about human motivation theories.

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Total No. of Questions : 4] **SEAT No. :**

P5009 **[Total No. of Pages : 1**

[5050]-231

M.Pharmacy (Semester - I & II)

COSMETICOLOGY

(2013 Pattern) (Elective)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***Question number one is compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Discuss composition of hair and give detailed account of shampoo products and its evaluation. **[10]**

Q2) Answer any three : **[3 × 5 = 15]**

a) Describe various rheological additives in cosmetics.
b) What are emollients and how do they act?
c) Describe composition of nail lacquers.
d) Give the composition of nail lacquers.

Q3) Short Notes (any three) : **[3 × 5 = 15]**

a) Herbal cosmetics.
b) Packaging of cosmetics.
c) Preservatives used in skin preparation.
d) Moisturizers.

Q4) Describe clinical testing protocol for shampoo products. **[10]**

OR

What components of sunrays are responsible for skin damage? Describe formulation parameters and evaluation for sunscreens.

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