(MPAN20112)

M. Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Analysis

Paper I – SPECTROSCOPIC METHODS OF ANALYSIS

(Regulation 2012-13)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Write short notes on :

(a) (i) Woodward Rules

(ii) FC Reagent.

Or

(b) (i) Electronic transitions in UV spectroscopy.

(ii) MBTH reagent.

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2. (a) (i) What is the necessary criterion for absorption to occur in the IR region? What types of molecular vibration are associated with IR absorption?

(ii) Name the functional groups that are present in a molecule for the corresponding wave numbers in an IR spectrum (1) 3300 cm^{-1} (2) 1690 cm^{-1} (3) Band at 1600, 1490 and 850-700 cm^{-1} (4) 2980 cm^{-1}.

Or

(b) (i) With a neat sketch explain the instrumentation involved in IR spectroscopy Add a note on sample handling techniques used for IR analysis.

(ii) Name the functional groups present in a molecule for the corresponding wave numbers in an IR spectrum. (1) 3250 (broad), 1695 cm^{-1} (2) 1740 cm^{-1} (3) 3165 (doublet), 1180 cm^{-1}.

3. (a) Write short notes on :

(i) Coupling constant in HNMR analysis

(ii) 2D NMR techniques and their applications.

Or

(b) Write short notes on :

(i) Spin-spin coupling in NMR

(ii) NOESY

(iii) D_2O exchange HNMR.

4. (a) Write short notes on :

(i) Principle and procedure involved in MALDI

(ii) Analysis of mass spectral fragmentation for structure analysis.

Or

(b) Write short notes on :

(i) Magnetic and Quadrupole Analyzers used in mass spectrometry

(ii) Quantitative and qualitative applications of mass spectrometry

5. (a) Explain the theory, principle and procedure involved in determination of

(i) Bromine (ii) Sodium.

Or

(b) Explain the theory, principle and procedure involved in determination of

(i) Sulfur (ii) Calcium.

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(MPAN20212)

M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Analysis

Paper II — ADVANCED ANALYTICAL TECHNIQUES

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Write in detail on Bragg's law. Add a note on Sources of X-rays.

Or

(b) Write in detail on principles and characteristics of X-ray emission spectrum.

2. (a) With a neat sketch explain the characteristics and analysis of DSC thermograms.

Or

(b) (i) Differentiate DTA and DSC

(ii) Instrumentation and working of TGA

3. (a) Write short notes on :

(i) Quantum yield

(ii) Radiation sources in fluorescence spectroscopy.

Or

(b) Classify fluorimetric techniques. Write in detail on factors effecting fluorescence intensity.

4. (a) Write in brief on :

(i) Optical activity in organic compounds

(ii) Cotton effect.

Or

(b) Write in detail on principle involved in CD. Explain the methodology involved in CD data analysis and interpretation.

5. (a) Write short notes on :

(i) Isotopic dilution

(ii) Scintillation counter.

Or

(b) Write in brief on :

(i) Labelled reagents

(ii) Radio tagging.

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(MPAN20312)

M Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017

Second Semester

Pharmaceutical Analysis

Paper III — QUALITY ASSURANCE AND QUALITY CONTROL

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Write the quality control tests for capsules.

Or

2. Explain the evaluation tests for disperse systems.

3. Explain the GMP concepts of plant layout and maintenance.

Or

4. Write about structure of pharmaceutical organization and personnel training in pharmaceutical industry.

5. Differentiate between master formula and batch formula records. Explain the preparation of master formula records.

Or

6. Explain the organization of raw material stores in pharma industry.

7. Write about types of glass and their quality control tests.

Or

8. Write about good warehousing practices.

9. Write the procedures for handling of returned goods and recovered materials.

Or

10. Write about organization of distribution and its records.

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(MPAN20412)

M. Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Analysis

Paper – IV: VALIDATION AND DOCUMENTATION

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Explain the validation of autoclaving and dry heat sterilization methods.

Or

2. Name the critical steps in the validation of mixing of solids and explain the protocol for its validation.

3. Write the validation of UV visible spectrophotometer.

Or

4. Explain the validation of HPLC method as per ICH guidelines.

5. What are the sources for data generation? Explain them with suitable examples.

Or

6. Enumerate the methods for data storage.

7. Explain the stages of finished products release.

Or

8. Write about quality audit and quality review.

9. What is contract manufacturing? What are its advantages and how it is validated?

Or

10. Write about the validation parameters for contract manufacturing in relation to factory premises and personnel.

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(MPPC20112)

M.Pharmacy. DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutics

Paper I — ADVANCES IN DRUG DELIVERY SYSTEMS — I

(Regulation 2012-13)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Give the classification of polymers with suitable examples. Write the applications of natural polymers in controlled drug delivery and why they are not popular compared to synthetic and semisynthetic polymers.

Or

2. Explain the significance of pharmacokinetics and pharmacodynamics in the design of controlled drug delivery with suitable examples.

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3. Write about the design of transdermal therapeutic systems highlighting the effects of ingredients to be used in them with suitable examples.

Or

4. Write about the following:

(a) Implants (7)

(b) Parenteral controlled drug delivery. (7)

5. Explain the mechanisms of bioadhesion. Write about formulation of bioadhesive systems.

Or

6. What are the problems of delivery of drugs through ocular route? Explain the methods for overcoming these problems.

7. What are the differences between liposomes and nanoparticles? Give the classification of liposomes and write about the methods of their preparation with their relative merits.

Or

8. Write short notes on the following:

(a) Resealed erythrocytes (7)

(b) Monoclonal antibodies. (7)

9. Write about the following:

(a) Drug targeting approaches for neoplastic diseases. (7)

(b) Techniques for drug delivery to respiratory system. (7)

Or

10. Write about tight junctions in brain delivery and explain the methods for disrupting these tight junctions for delivery of drugs to brain.

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(MPPC20212)

M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutics

Paper II — ADVANCED BIO-PHARMACEUTICS

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Enumerate the mechanisms of drug absorption citing suitable examples. Add a note on the nature of biological membrane on drug absorption.

Or

2. Compare the effects of routes of drug administration in eliciting the therapeutic effect with suitable examples.

3. Discuss the effect of particle size, polymorphism and prodrugs on drug dissolution and absorption.

Or

4. Explain the theories of dissolution and pH partition hypothesis.

5. Write about the formulation factors influencing the bioavailability of drug from tablets.

Or

6. Enumerate the role of topical route in the improvement of bioavailability of drugs. What are the limitations?

7. What is the significance of in vitro-in vivo correlation? Explain the methods for the same with their advantages and disadvantages.

Or

8. Explain the requirements of dissolution testing. What factors will influence the selection of dissolution medium. Mention the significance of in vitro sink condition.

9. Describe the experimental protocol for carrying out bioequivalence studies. What factors will influence the selection of experimental design.

Or

10. Explain the methods for assessing the bioavailability.

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(MPPC20312)

M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutics

Paper III — ADVANCED PHARMACOKINETICS

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Explain the determination of absorption rate constant by Wagner-Nelson method. (10)

(b) A 70 Kg volunteer is given an intravenous dose of an antibiotic, and serum drug concentrations were determined at 2 hours and 5 hours after administration. The drug concentrations were 1.2 and 0.3 g/mL, respectively. What is the biologic half life for this drug, assuming first-order elimination kinetics? (4)

Or

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2. Give the differences between one and two compartments. Explain the two compartment model for calculation of absorption rate constant with intravenous bolus administration.

3. What are the causes for non-linear kinetics? Give suitable examples of drugs following these kinetics. Explain methods for detecting non-linearity.

Or

4. Define and mention the significance of Michaelis-Menten constant and maximum metabolic rate. Explain the application of double reciprocal plot for their calculation. What are its limitations?

5. What are time dependent pharmacokinetics? Mention the reasons for time dependency. Explain the time dependent pharmacokinetics with suitable examples.

Or

6. Write about chronopharmacokinetics and how they can be modulated in the dosage form design for better therapeutic effect.

7. Write about the factors influencing the drug metabolism with suitable examples.

Or

8. Discuss the significance of phase II biotransformation reactions over phase I reactions and explain them with suitable examples.

9. Discuss the causes for drug interactions and explain the drug interactions mediated by absorption and distribution.

Or

10. Explain the influence of alcohol and beverages on drug action citing suitable examples.

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M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutics

Paper IV: ADVANCES IN DRUG DELIVERY SYSTEMS — II

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Give the structure of epithelial cell junctions and discuss their role in the drug absorption.

Or

2. Explain the role of efflux transporter systems in drug absorption and how multi drug resistance can be prevented.

3. Mention the advantages of gene therapy and enumerate its applications in inherited diseases.

Or

4. Explain different gene delivery systems.

5. Explain how genetic polymorphism influences drug disposition with suitable examples.

Or

6. Write about bioinformatics and human genome project.

7. Write about stability problems associated with delivery of proteins and peptides. Explain methods for overcoming these difficulties.

Or

8. Explain recombinant DNA technology.

9. Write about peptide based and nucleic acid based vaccines.

Or

10. Write about the following:

(a) Lipid carrier systems. (7)

(b) Transport of antigens. (7)

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M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Chemistry

Paper I — ADVANCED ORGANIC CHEMISTRY – II

(Regulation 2012-13)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

1. (a) Discuss with examples disconnection approach and retrosynthesis, regioselectivity in Organic Synthesis.

Or

(b) Write in detail :

(i) Concergent Synthesis

(ii) Chemioselectivity.

2. (a) Explain Stereochemistry in drug action. Explain the concepts of Enantiomers and Diastomers. Discuss the methods employed in Chiral synthesis.

Or

(b) Write the Chiral synthesis of following Drugs.

(i) Levoflaxacin

(ii) Ramipril.

3. (a) Write a note on Williamson's Synthesis with its applications and write a note on phase transfer catalysis in Green Synthesis.

Or

(b) What is Microwave Assisted synthesis? Write methods employed in microwave methods in details with its merits and demerits.

4. (a) Write the Physical and Spectroscopic properties of Pyridine. And write its reactions with Oxidizing and reducing agents.

Or

(b) Write in detail about of Claisen Rearrangement. Write the reactions involved in Pyridine aldehyde and ketones.

5. Write the chemistry of organic synthesis of

(a) (i) Indoles

(ii) Benzimidazoles

(iii) Oxazoles.

Or

(b) (i) Thazoles

(ii) Pyrimidines

(iii) Quinolines.

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M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Chemistry

Paper II — ADVANCED MEDICINAL CHEMISTRY

(Regulation 2012–13)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

1. (a) Explain in detail about drug discovery by recombinant DNA technology.

Or

(b) Write a note on QSAR Studies like (physical properties related to potency) in modern methods of drug design. Applications of Hansch analysis.

2. (a) What is COMFA? Explain the different methods in COMFA with its merits and demerits.

Or

(b) Write a detailed note computational chemistry. Write a note on molecular dynamic stimulations and quantum mechanics.

3. (a) Define combinatorial chemistry libraries. Explain the tea bag and pin method.

Or

(b) Define HTS. Explain the different methods employed in HTS like colourimetric and flurometric methods.

4. (a) Define virus. Write in detail about classification of anti viral agents with structural examples. Write any of the mode of action.

Or

(b) Write the synthesis of chlorambucil, stavudine and methotrexate.

5. (a) Write the chemistry SAR mechanism of action and ring analogues of phenothiazines.

Or

(b) Write the synthesis and uses of Haloperidoi, Chlorpromazine and Clozepine.

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M.Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Chemistry

Paper III — CHEMISTRY OF NATURAL PRODUCTS

(Regulation 2012 – 2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

1. (a) Write the Structure, MOA, SAR and Detailed of Qunine and Atropine?

Or

(b) Write the Structure MOA, SAR and Detailed of Reserpine and Papaverine?

2. (a) Write a note on Anti cancer agents? With its SAR, MOA, of Dactinomycin and Daunorubicin?

Or

(b) Write a note on Anti Cancer agent from Marine Sources? Byostatin and Diastatin?

3. (a) Write a detailed note on Steroidal Antiinflammatory agents? With chemistry SAR, Uses and Toxicity.

Or

(b) Write the Structures and Chemistry of Estrogens and Progestenes? Mechanism of action and uses.

4. (a) Write a note on β Lactamase inhibitors? Classification, Numbering, Degradation and SAR of β Lactamase.

Or

(b) Write a detailed Comparsion of Structural And Biological features between Pencillins and Cephalosporins?

5. Write the Structure Elucidation of by UV, NMR, IR, MS.

(a) Menthol

(b) Citral.

Or

(c) Papaverine

(d) Kaempferol.

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M. Pharmacy DEGREE EXAMINATIONS,
AUGUST 2017.

Second Semester

Pharmaceutical Chemistry

Paper IV — SPECTRAL ANALYSIS

(Regulation 2012-2013)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

1. (a) Write the principle and instrumentation of UV spectroscopy. Explain the qualitative and quantitative applications of UV spectroscopy.

Or

(b) Write the principle and instrumentation of IR spectroscopy and write in detail about finger print regions of functional groups.

2. (a) Write the principle involved 1HNMR. Write a neat diagram of instrumentation and explain in detail. Write in detail about NMR signal. Explain the role of TMS.

Or

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(b) Explain the significance of 1HNMR in structural determination. Write the approximate chemical shift region for the following molecules and explain them.

(i) 3-Methyl Isopropane

(ii) Benzene

(iii) Furan.

3. (a) Write in detail about spin-spin and spin lattice relaxation. Write a note on coupling constant. Explain the factors affect the spectrum in 13CNMR.

Or

(b) Explain the significance of 13CNMR in structural determination. Write the approximate chemical shift region for the following molecules and explain them.

(i) 1-Methyl pyrimidine

(ii) Toluene.

4. (a) Explain the instrumentation of mass spectroscopy. Explain in detail about sampling technique used in mass spectrophotometer. Explain the role of MS in structural determination.

Or

(b) Write the principle involved in mass spectroscopy and write in detail about molecular fragmentation in mass spectroscopy.

5. Write a detailed note for

(a) HMQC

(b) COSY.

Or

(c) HETCOR

(d) HMBC.

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