

QP Code:

Reg. No. :

M Pharm Degree (Part I) Examinations – Common paper
(Model Question Paper)

MCS I -MODERN ANALYTICAL AND RESEARCH METHODS

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays-**(2 X 20= 40 marks):**

1. a) What is the principle and instrumentation of FTIR? (10)
b) Write a note on sample handling in IR spectroscopy and give its applications. (10)
2. a) Write the principle of NMR spectroscopy? Briefly explain spin-spin coupling & decoupling techniques used. Give applications of NMR spectroscopy. (15)
b) Write the significance of C-13 NMR spectroscopy in the structural elucidation of organic compounds. (5)

Short essays-**(6 X 10= 60 marks):**

3. Compare GC with HPLC. Briefly discuss on derivatisation methods used in GC (5+5)
4. Write on detectors used in HPLC with neat diagram and mention the pharmaceutical applications of HPLC. (10)
5. Discuss the choice of solvents and solvent effects in UV spectroscopy. Factors influencing fluorescence intensity. (5+5)
6. Discuss the principle instrumentation and applications of X-ray powder diffraction technique. (10)
7. Give the theoretical principle of mass spectroscopy with the aid of neat diagram of double focussing mass spectrophotometer. Write a brief note on hyphenation of GC & LC with MS. (7+3)
8. Give the significance of students T- test, ANOVA, regression analysis and correlation coefficient. (10)

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M Pharm Degree (Part I) Examinations – Pharmaceutical Analysis
(Model Question Paper)

Paper I – ADVANCED PHARMACEUTICAL ANALYSIS

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays-**(2 X 20= 40 marks):**

1. a) Explain about validation and calibration of a HPLC instrument. (10)
- b) Describe the quality control tests for tablets and parenterals. (5+5)
2. Write a note on the following (5 x 4=20)
 - a) Quality control of radio pharmaceuticals.
 - b) Quantitative determinations of amino groups.
 - c) Microbiological assay of Streptomycin.
 - d) Assay of rabies vaccines.

Short essays-**(6 X 10= 60 marks):**

3. a) Describe the typical methods to analyse Vitamin “A”. (5+5)
- b) Write a note on the test for effectiveness of antimicrobial preservatives.
4. Explain the official methods for the determination of the following dosage forms: (2.5 x 4)
 - a) Chloramphenicol tablets b) Ascorbic acid tablets.
 - c) Phenobarbitone tablets d) Digoxin tablets
5. Describe the radioimmunoassay and radiotracer techniques used in pharmaceutical analysis. (10)
6. Explain the principles and procedures for the use of reagent PDAB in pharmaceutical analysis. (10)
7. Write a detailed study of principle and procedure involved in various physico - chemical methods of analysis of Barbituric acid derivatives. (10)
8. Enlist the different applications of instrumental methods in the development and quality control of drugs. (10)

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M Pharm Degree (Part I) Examinations – Pharmaceutical Analysis
(Model Question Paper)

Paper II – QUALITY CONTROL & QUALITY ASSURANCE

Time: 3 hrs

Maximum marks: 100

Answer all questions
Draw diagrams wherever necessary

Essays**(2 X 20= 40 marks):**

1. a) Write the Concepts and Philosophy of TQM. (10)
 b) Write about the Master formula records. (5)
 c) Write note on manufacturing documents. (5)
2. a) Classify packaging materials and tests to ensure the quality of secondary
 packaging materials? (15)
 b) Explain the pharmacopoeial tests for various glass containers. (5)

Short essays**(6 X 10= 60 marks):**

3. a) Write a note on Good Warehousing Practices. (5)
 b) How the sanitation and sterile areas are maintained in pharma industry? (5)
4. Write brief note on Organization and personnel in a pharma company. (10)
5. Write a note on concepts and philosophy of GMP. (10)
6. What are the standard operating procedures for cleaning, drying and
 sterilization? (10)
7. What are the procedures required for evaluation of complaints and recall of
 distributed finished products? (10)
8. a) Give an account on quality audits . (5)
 b) What are the protocols to be followed in selecting vendors? Add a note
 on purchase, receipt, storage and release of raw materials. (5)

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M Pharm Degree (Part I) Examinations – Pharmaceutical Analysis
(Model Question Paper)

Paper III – PHARMACEUTICAL AND CLINICAL ANALYSIS

Time: 3 hrs

Maximum marks: 100

Answer all questions
Draw diagrams wherever necessary

Essays-**(2 X 20= 40 marks):**

1. a) Write on ICH guidelines for impurity and related substances determination in drugs. Explain the impact of drug impurities in stability of drugs and their therapeutic action. (10)
- b) Enumerate the concept of analytical and bioanalytical method development of drugs and dosage forms using HPTLC. (10)
2. Write in detail on DOPE tests and methods for the estimation of anabolic steroids and drugs of abuse from biological samples. (20)

Short essays-**(6 X 10= 60 marks):**

3. a) Write a note on TDM and its application. (5)
- b) Write on the methods for analyzing various carbohydrates in foods. (5)
4. Write on the methods for extraction of drugs from biological samples. (10)
5. Write briefly on toxicity testing in cosmetics. (10)
6. Explain the analytical procedures for the estimation of the following: (5 +5)
 - a) Theophylline
 - b) Phenytoin
7. Write a detailed note on ICH guidelines for the stability studies of drugs. (10)
8. How the quality of the following cosmetics in the finished forms are determined?

a) Bay care products	b) Personal hygiene products
c) Colour cosmetics	d) Hair care products.

(2.5 x 4=10)

QP Code:**Reg. No. :.....****M Pharm Degree (Part I) Examinations – Pharmaceutical Chemistry
(Model Question Paper)****Paper I – Advanced Medicinal Chemistry****Time: 3 hrs****Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays:****(2x20=40)**

1. Discuss in detail the various approaches to drug discovery using rational methods.
2. How the antihypertensive agents are classified? Explain in detail the M.O.A of drugs belonging to each class. Describe the synthesis of any one drug.

Short Essays:**(6x10=60)**

3. Give the applications of combinatorial chemistry in drug discovery.
4. Explain different types of molecular graphics in molecular modelling.
5. a) What are the forces involved in drug receptor interactions. Give details.
b) How the following factors affect drug receptor interaction.
 - Bioisosterism
 - Steric factors of the drug.
6. Give the classification of neoplastic agents. Write a note on alkylating agents.
7. a) Outline the classification of antihyperlipidemic agents and give synthesis of any one drug.
b) Write a note on immunosuppressants.
8. What is gene therapy? Explain its usefulness in treatment of cancer and other chronic diseases.

QP Code:**Reg. No. :****M Pharm Degree (Part I) Examinations – Pharmaceutical Chemistry
(Model Question Paper)****Paper II – Advanced Organic Chemistry****Time: 3 hrs****Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays:****(2x20=40)**

1. Explain localized and delocalized bonds with examples. Explain generation fate and biological significance of free radicals.
2. Write notes on (4X5=20)
 - a) Oppeneaur oxidation b) Wolf Kishner reduction
 - c) Birch reduction d) Meerwin Pondroff's reduction

Short Essays:**(6x10=60)**

3. Discuss various methods of determining organic reaction mechanisms.
4. Discuss in detail the various mechanisms involved in the addition to carbon- carbon multiple bonds.
5. Explain in detail about Retro synthetic analysis. Explain hyper conjugation with examples.
6. Discuss the phase transfer catalysis and its applications in reduction reactions.
7. Give a detail account of carbocations and carboanions.
8. Explain the mechanism of aromatic electrophilic substitution reaction. Write the basic theory of photochemical reactions and mention its applications.

QP Code:**Reg. No. :.....****M Pharm Degree (Part I) Examinations – Pharmaceutical Chemistry
(Model Question Paper)****Paper III – Chemistry of Natural Products****Time: 3 hrs****Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays: (2x20=40)**

1. Define alkaloids. Give the methods of isolation of alkaloids. Elucidate the structure of quinine.
2. Write the applications of IR, NMR and MASS Spectroscopy in the structural elucidation of natural products. Explain the importance of GLC and HPLC in separation.

Short Essays: (6x10=60)

3. Explain the chemistry of :
a) Rutin b) Carotenes
4. Elucidate the structure of Cholestrol
5. Outline the synthesis :
a) Progesterone b) Reserpine
6. Write a note on role of natural products in new drug development. Explain the constitution of vitamin A.
7. Write in detail the role of recombinant DNA technology. Write about the isolation and characterization of important neutraceuticals.
8. Define terpenoids and elucidate the structure of camphor.

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**M Pharm Degree (Part I) Examinations – Pharmacognosy and
Phytochemistry
(Model Question Paper)**

Paper I – Phytochemistry

Time: 3 hrs

Maximum marks: 100

Answer all questions

Draw diagrams wherever necessary

Essays:

(2x20=40)

1. What are the steps involved in drug discovery process from natural products. Explain the different method of standardization of crude drug.
2. Explain the chemistry, methods of extraction, sources, identification tests and uses of alkaloids

Short Essays:

(6x10=60)

3. What is the extraction and evaluation technique of Taxol.
4. Chemistry and pharmacological actions of carotenoids.
5. What are the applications of docking studies with respect to natural products Z.
6. What are the uses of NMR and Mass Spectroscopic methods in identification of phytochemicals.
7. Write the biosynthesis and chemistry of Quinoline alkaloids.
8. Explain briefly novel pharmaceutical agent from marine sources.

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**M Pharm Degree (Part I) Examinations – Pharmacognosy and
Phytochemistry**

(Model Question Paper)

Paper II – Advanced Pharmacognosy

Time: 3 hrs

Maximum marks: 100

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays:

(2x20=40)

1. Explain the cultivation methods including soil, fertilizers, irrigation and post harvest treatment of Ashwagandha.
2. Explain various methods for improving the cultivation of crops.

Short Essays:

(6x10=60)

3. Mutations and its applications.
4. Effect of Climate and soil moisture on the yield of phytoconstituents.
5. WHO guidelines for pesticide residues and aflatoxins in herbal drugs.
6. Macro and micronutrients needed for cultivation of medicinal plants
7. Pheromones.
8. Different types of soil and its importance in cultivation of medicinal plants.

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**M Pharm Degree (Part I) Examinations – Pharmacognosy and
Phytochemistry
(Model Question Paper)**

Paper III– Applied Pharmacognosy and Plant biotechnology

Time: 3 hrs**Maximum marks: 100**

*Answer all questions
Draw diagrams wherever necessary*

Essays:**(2x20=40)**

1. What are the general standards for the ayurvedic formulations.
2. What are the genetic factors affecting plants and their constituents? What are the applications of transgenic plants.

Short Essays:**(6x10=60)**

3. *Invitro* screening for anti-inflammatory activity
4. Herb-drug interactions.
5. Role of precursors and elicitors on the production of biomedicinals.
6. Methods of preparation and uses of phytosomes
7. Biomarkers in HPTLC standardization of herbals
8. The applications of fermentation technology in the production of pharmaceuticals.

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M Pharm Degree (Part I) Examinations – Pharmaceutics
(Model Question Paper)

Paper I– Formulation Technology

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays: **(2x20=40)**

1. Explain the design and formulation of sustained release tablets. Write the film coating process and the defects of film coated tablets.
2. Explain the Polymers used in controlled drug delivery. What are the various techniques used for microencapsulation. Explain phase separation Coacervation technique.

Short Essays: **(6x10=60)**

3. What are monoclonal antibodies. Explain the term ‘Cloning’
4. Explain the various mechanism of drug distribution in pulmonary drug delivery.
Explain the design and development of inhalation drug delivery systems
5. Give examples of viral vaccines. Explain the production of a viral vaccine by tissue culture method
6. Give a brief account on the following: Applications of nanoparticles and Concepts of physical drug targeting.
7. Explain any two types of parenteral controlled drug delivery system. Explain the factors that affect the release of drug from its delivery system
8. Explain the design and various types of transdermal drug delivery systems.
Explain the evaluation of transdermal delivery system.

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M Pharm Degree (Part I) Examinations – Pharmaceutics
(Model Question Paper)

Paper II – Biopharmaceutics and Pharmacokinetics

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays: **(2x20=40)**

1. Define the terms bioavailability and bioequivalence. Discuss selection criteria of volunteers in bioavailability and bioequivalence studies. Why the bioavailability studies are carried out in healthy subjects. Explain any one method of determination of bioavailability
2. Explain flip –flop model. What are the various methods for estimation of absorption rate constant. Explain the method of residuals.

Short Essays: **(6x10=60)**

3. What are gene libraries? Give examples of pharmaceuticals produced by recombinant DNA technology
4. Discuss the methods of dose adjustment in renal impairment. Explain the need of short term i.v infusions.
5. Explain Wagner –Nelson method. Write about its merits and demerits.
6. Explain pharmacokinetic model and their objectives. Discuss assumptions of 'one compartment model'.
7. What is capacity limited kinetics. Explain the causes of non-linearity. Discuss the application of Michaelis-Menton equation in non-linearity.
8. Discuss various biopharmaceutical factors affecting drug absorption from an injectable. Explain sigma –minus method and its limitation.

QP Code:**Reg. No. :**

M Pharm Degree (Part I) Examinations – Pharmaceutics
(Model Question Paper)

Paper III – Industrial Pharmacy

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays: **(2x20=40)**

1. Write a note on preformulation studies with special reference to polymorphism and solubility.. Write a note on stability of drugs in preformulation study.
2. Describe the production, harvest and recovery of lactic acid by fermentation

Short Essays: **(6x10=60)**

3. Write notes on the following:..
Optimization parameters, Simplex method
4. Explain the various types of industrial hazards. Explain industrial effluent testing procedures.
5. Write in detail about the elements of cost. Write in detail about the Revocation of patents.
6. Write notes on: cost control, ISO 9000 series
7. Explain the factors to be considered for pilot plant scale up. Explain the requirements of New Drug Application (NDA) .
8. Define the term fermentation. Describe the production of ethanol by fermentation

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M Pharm Degree (Part I) Examinations – Pharmacology
(Model Question Paper)

**Paper I – PHARMACOLOGICAL SCREENING METHODS AND DRUG
DEVELOPMENT**

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays**(2×20=40 marks)**

1. Discuss various screening methods of antihypertensive drugs
2. Describe the basic principles of bioassays. Explain and describe the methods used in bioassay of diphtheria anti-toxin and heparin sodium

Short essays:**(6×10=60 marks)**

3. Write the principle and methods of ELISA
4. Briefly explain CPCSEA guidelines on physical, environmental and food in animal facility.
5. Write a note on anti-ulcer screening
6. Write short notes on sub-acute and chronic toxicity testing
7. Write notes on:
 - a. Transgenic animals
 - b. Adreno receptors
8. Explain the application of ANOVA in pharmacological experiments

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M Pharm Degree (Part I) Examinations – Pharmacology
(Model Question Paper)

Paper II– BIOCHEMICAL & MOLECULAR PHARMACOLOGY

Time: 3 hrs**Maximum marks: 100**

Answer all questions
Draw diagrams wherever necessary

Essays**(2×20=40 marks)**

1. Describe the following:

Gene cloning

Programmed cell death

2. Discuss biology, pharmacology, therapeutic potentials of immunotoxins.

Short essays**(6×10=60 marks)**

3. Write the pharmacology of Erb-B receptors

4. Explain substance P

5. Multidrug resistance (MDR) proteins

6. Cox-2 regulators and their role in inflammation

7. Biology and pathophysiology of cystic fibrosis.

8. Southern and western blotting

QP Code:**Reg. No. :.....**

M Pharm Degree (Part I) Examinations – Pharmacology
(Model Question Paper)

Paper III– RECENT ADVANCES IN PHARMACOLOGY

Time: 3 hrs**Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays****(2×20=40 marks)**

1. What are ion-channels, explain pharmacology of various modulators
2. Explain various Molecular mechanisms of drug action

Short essays:**(6×10=60 marks)**

- 3 Describe Cannabinoid receptors, adrenergic receptors
- 4 Describe various Ethical issues related to stem cells and human cloning
- 5 Discuss pharmacological aspects of clinical conditions like immunomodulators
- 6 What are Fc Receptors? Explain various functions of anti-bodies
- 7 Write the regulatory requirements and clinical uses of Nutraceuticals
- 8 Write the importance of concept rational drug use?

QP Code:**Reg. No. :.....**

**M Pharm Degree (Part I) Examinations – Pharmacy practice
(Model Question Paper)**

Paper I – Clinical pharmacy practice and Hospital pharmacy

Time: 3 hrs**Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays:****(2×20=40 marks)**

1. What are the roles and responsibilities of a clinical pharmacist on day today basis in a tertiary care hospital?
2. Define hospital formulary. How is it different from drug list? Discuss the importance of hospital formulary in promoting rational and scientific use of drugs in hospital

Short essays**(6×10=60 marks)**

3. Why communication skill is important? Explain verbal and non-verbal communication skills
4. How to assess the possibility of manufacturing large volume parenterals in a 1000 bedded hospital
5. Define Unit dose dispensing system. Describe its advantages and disadvantages
6. Write the functions of CSSD
7. Discuss the role of a typical Infection Control Committee
8. Write about various Pharmacoeconomic tools used for selecting drug products in hospital. Explain cost effective analysis with example

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**M Pharm Degree (Part I) Examinations – Pharmacy practice
(Model Question Paper)**

Paper II – Clinical research and Community pharmacy

Time: 3 hrs**Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays****(2×20=40 marks)**

1. Discuss the therapeutic drug monitoring process of anticonvulsant drugs
2. Elaborate the role of community pharmacists in promoting Family welfare programme

Short essays**(6×10=60 marks)**

3. Describe the role of sponsor and investigator in clinical trial as per ICH GCP
4. Discuss methods of allocation and randomization in clinical development of drugs
5. Discuss the role of computers in community pharmacy
6. What do you mean by OTC drugs? What points a community pharmacist keep in mind when dispensing OTC drugs.
7. How pharmacokinetics is altered in hepatic disease?
8. Explain the role of supportive care in clinical toxicology

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M Pharm Degree (Part I) Examinations – Pharmacy practice
(Model Question Paper)

Paper III – Pharmacotherapeutics

Time: 3 hrs**Maximum marks: 100***Answer all questions**Draw diagrams wherever necessary***Essays****(2×20=40 marks)**

1. How to establish the diagnosis of acute renal failure. Classify and discuss the various causes of the same
2. Discuss the pathophysiology and therapeutics of chronic obstructive pulmonary disease.

Short essays**(6×10=60 marks)**

3. Discuss the latest therapeutic options for management of Congestive heart failure
4. Write a note on scabies. Give an account on drug related skin reactions
5. Discuss drug prescribing in pregnant patients
6. What are the clinical features of rheumatoid arthritis? Write the therapeutic sequence according to severity
7. What are the complications associated with blood transfusion
8. Write the criteria for diagnosis of schizophrenia. Explain the considerations to be kept in mind when instituting patients on drug therapy.