JSS ACADEMY OF HIGHER EDUCATION & RESEARCH

(DEEMED TO BE UNIVERSITY) MYSURU

JSS AHER University Exam

Previous Question Papers

November 2025

(B. Pharm)

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QP Code: 11431

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

First Semester B Pharm (SS1) Examination – November 2025

Subject: Human Anatomy and Physiology- I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10= 20 Marks**

1. Define tissue and explain in detail connective tissue. (2+8)
2. Divide the skeletal system and discuss types of bones and neurotransmitters. (2+4+4)
3. Define blood, give its composition and discuss the formation and destruction of red blood cells. (2+2+6)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the process of homeostasis.
5. Describe the structural and functional classification of joints.
6. Discuss the types of anemia.
7. Describe various types of cranial nerves.
8. Explain the internal structure of eye.
9. Summarize the physiology of hearing.
10. Discuss the renin angiotensin system.
11. Explain the factors affecting blood pressure and explain the role of baroreceptors in regulation of blood pressure.
12. Explain cardiac cycle.

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QP Code: 11432

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

First Semester B. Pharm (SS1) - Examination – November 2025

Subject: Pharmaceutical Analysis

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define the term error. Explain the various approaches followed for the minimization of errors
2. Discuss the Ostwald's and Quinoid theory of acid base indicators.
3. Explain in detail the procedure of gravimetric analysis.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Discuss any five sources of impurities in medicinal agents.
5. Discuss the estimation of sodium benzoate by non-aqueous titration.
6. Explain the principle and procedure of diazotization titrations.
7. Differentiate between iodometry and iodimetry.
8. Explain the principle and applications of cerimetry.
9. Explain with the help of examples, the various definitions for oxidation.
10. Discuss the construction of standard hydrogen electrode (SHE). What are the advantages of SHE?
11. With the help of a polarogram, explain the principle of polarography. Give some advantages of this technique.
12. Discuss the conductometric titration between a strong acid and a strong base.

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QP Code: 11433

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

First Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutics

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10= 20 Marks**

1. Define prescription. How will you overcome the errors of prescription?
2. Define and classify powders with suitable examples.
3. Explain different tests for identification of type of emulsion.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the factors affecting posology.
5. Write short notes on eutectic mixtures.
6. Define suspensions. List out their advantages and disadvantages over other dosage forms.
7. Define suppositories. Explain different types of suppositories.
8. Explain various methods of evaluation of suppositories.
9. Write a note on therapeutic incompatibility.
10. Explain different mechanism for dermal penetration of drugs.
11. How will you evaluate semi solid dosage forms?
12. Explain different methods for preparation of ointments.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

First Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Inorganic Chemistry

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2 x 10= 20 Marks**

1. Write the principle, reaction, procedure, and apparatus used in arsenic limit test. (2+3+2+3)
2. a) Explain buffer equations and buffer capacity with suitable examples. (5+5)
   b) Write about physiological acid base balance.
3. a) What are antacids? Enlist ideal properties of an antacid. (5+5)
   b) Write the preparation, assay, and properties of sodium bicarbonate.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. With the reactions, explain the principle involved in the limit test for iron.
5. Define and classify dental products with examples. Write briefly on the therapeutic utility of desensitizing agents.
6. What are antimicrobial agents? Give the preparation and uses of hydrogen peroxide.
7. Define and classify antidotes with suitable examples.
8. What are hematinic? Write the preparation and assay of ferrous sulphate.
9. Give the preparation, properties and uses of ammonium chloride.
10. Enlist various precautions to be taken while handling radiopharmaceuticals.
11. Explain the construction and working of Geiger-Müller (GM) counter.
12. Enlist the properties of α, β and γ radiations.

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QP Code:11435

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Second Semester B. Pharm (SS1) Examination – November 2025

Subject: Human Anatomy and Physiology-II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2 x 10= 20 Marks**

1. Discuss the organization of the cerebellum and its functional areas with a neat, labelled diagram. (2+4+4)
2. Describe the process of digestion and enlist the role of various digestive enzymes. (6+4)
3. Elaborate the physiology of urine formation with a neat, labelled diagram of a nephron. (5+5)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. What is a reflex action? Explain the neural pathway involved in its response.
5. Comment on the cellular process responsible for the production of ATP.
6. What are the lung volumes and capacities?
7. Enlist functions of hormones released from the pituitary gland.
8. Summarize the steps involved in the biosynthesis of thyroid hormone.
9. List the functions of insulin.
10. Write a note on the steps involved in oogenesis.
11. Explain about female reproductive hormones.
12. Explain the structure of a DNA with a labelled diagram.

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QP Code:11436

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Second Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Organic Chemistry-I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any two questions) **2 x 10= 20 Marks**

1. Define and classify isomerism, and explain in detail chain, position, functional, metamerism and keto-enol tautomerism with examples.
2. a) Explain sp^2 hybridization in alkenes and stabilities of alkenes. (7+3)
   b) Explain the stability of conjugated dienes.
3. a) Explain mechanism, kinetics and stereochemistry of SN_1 reaction. (6+4)
   b) What are the factors affecting SN_1 reaction?

Section C

SHORT ESSAY (Answer any seven questions) **7x5= 35 Marks**

4. Mention the rules followed in writing the IUPAC name of alkanes.
5. Explain free radical substitution reaction in alkanes with mechanism.
6. Distinguish between SN_1 and SN_2 reactions.
7. Explain aldol and crossed aldol condensation and the limitations of aldol condensation.
8. Explain Benzoin and Perkin condensation by taking one example.
9. Give the qualitative tests and uses of formaldehyde and paraldehyde.
10. Explain the basicity of amines and mention affecting factors that affect the basicity of amines.
11. Explain the inductive effect and how it is used to explain the acidity of carboxylic acid.
12. Write the structure and uses of citric acid, succinic acid, salicylic acid, benzyl benzoate and acetyl salicylic acid.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Second Semester B. Pharm (SS1) Examination – November 2025

Subject: Biochemistry

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2 x 10= 20 Marks**

1. a) Explain the structural classification of proteins with examples. (5+5)
   b) Define and classify lipids with examples.
2. Explain the pathway and significance of the hexose monophosphate pathway.
3. Discuss the *de novo* synthesis of palmitic acid.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write the biological significance of cyclic AMP.
5. Describe the components of the electron transport chain.
6. Explain the general reactions of amino acid metabolism.
7. Explain the catabolism of purine nucleotide.
8. Explain the process of transcription.
9. Explain the semiconservative model of DNA replication.
10. Discuss reversible enzyme inhibition.
11. Explain Line Weaver Burk plot.
12. Explain the allosteric regulation of enzyme activity.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Second Semester B. Pharm (SS1) Examination – November 2025

Subject: Pathophysiology

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2 x 10= 20 Marks**

1. Explain the etiology and pathogenesis of cell injury. (5+5)
2. Define ischemic heart diseases. Write the signs and symptoms, pathogenesis of ischemic heart disease. (1+2+7)
3. Define epilepsy. Add a note on its classification and pathophysiology. (1+4+5)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on homoeostasis.
5. Discuss on pathogenesis of chronic obstructive airway disease.
6. Define anemia. Write its classification.
7. Write a short note on alcoholic liver disease.
8. Enumerate the pathogenesis of rheumatoid arthritis.
9. Write a short note on chemical carcinogens.
10. Explain about the pathology of urinary tract infection.
11. Give an account on clinical manifestation and pathogenesis of gonorrhea.
12. Write the pathogenesis of tuberculosis.

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QP Code:11439

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Third Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Organic Chemistry-II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. a) Explain the molecular orbital structure of benzene. Explain how the structure of benzene is elucidated. (7+3)
   b) Give structures and uses of saccharin, BHC and chloramine.
2. Write a note on the followings (ANY TWO):
   a) Azo dye formation
   b) Cumene process for the preparation of phenol
   c) Basicity of amines and the effect of substituents on its basicity
3. Write down the significance and principle involved in the determination of the saponification value, iodine value, ester value, acid value, and acetyl value.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a brief note on Friedel Crafts alkylation reaction with its mechanism, synthetic application and limitations.
5. Define carboxylic acid. Write any 2 preparations and 3 reactions of benzoic acid.
6. Describe various reactions of fatty acids with examples.
7. Give structure and medicinal uses of triphenylmethane, diphenylmethane, and phenanthrene.
8. Write any two methods of preparation and two reactions of anthracene.
9. Explain various electrophilic substitution reactions of naphthalene.
10. Write a note on the stability of cycloalkanes. Explain Baeyer's strain theory.
11. Write any two preparations and two reactions of cyclopropane.
12. Write a note on strainless theory and write about factors affecting the stability of conformation.

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QP Code:11440

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Third Semester B. Pharm (SS1) Examination – November 2025

Subject: Physical Pharmaceutics - I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define solubility and detail about solubility expressions. Write a note on the diffusion principles in biological systems.
2. Explain the following with suitable examples and applications:
   a) Eutectic mixtures
   b) Optical rotation.
3. Define surface tension. Write in detail about the various measurements of surface and interfacial tensions.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the critical solution temperature and its applications.
5. What are aerosols? Explain its components and applications.
6. Explain about spreading coefficient.
7. Explain the principle involved in pH titration method in complexation.
8. Write a note on chelate complexes with suitable examples? Write its applications.
9. What are the applications of buffers?
10. Define pH? What are the methods used for the determination of pH?
11. Write in detail about buffered isotonic solutions?
12. What are the uses of buffers in pharmaceutical and biological systems.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Third Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Microbiology

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Classify bacteria on the basis of morphological features. Add a note on composition and functions of cell wall.
2. Explain the mechanism of action, procedure, applications and factors affecting sterilization using ethylene oxide.
3. Explain different factors affecting disinfection.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Define and classify culture media with examples.
5. Explain the mechanism of sterilization and heat transfer by hot air oven.
6. Write about classification of virus.
7. Outline the process of assessment of new antibiotic.
8. Explain the principle involved in microbiological assay of vitamin B12.
9. Describe construction and working of laminar air flow.
10. Explain the evaluation of microbial stability of formulations.
11. Write briefly the general procedure for cell culture.
12. Write the applications of cell cultures in pharmaceutical industry and research.

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QP Code:11442

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Third Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Engineering

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Describe the Reynolds experiment. Explain determination of Reynolds number and its significance.
2. Explain the construction, working and advantage of multiple effect evaporator with a neat, labelled diagram.
3. Explain the principle, construction and working of freeze dryer with a neat labelled diagram.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the principle and construction of hammer mill.
5. Explain Fourier's law.
6. Explain the merits and demerits of twin shell blender.
7. Explain Seitz filter.
8. Write the principle and construction of leaf filter.
9. Explain non-perforated basket centrifuge.
10. Explain the factors affecting during materials selected for pharmaceutical plant constructions.
11. Explain the theory of corrosion.
12. Describe the methods involved in prevention of corrosion of metals.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fifth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Jurisprudence

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain the conditions of license for the manufacturing of drugs.
2. Write detail study of schedule H and X.
3. Discuss in detail about Pharmacy Act 1948.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on loan license and repacking license.
5. What is DTAB? Discuss about the functions of DTAB.
6. Mention the offences and penalties under NDPS Act.
7. What are the classes of exempted advertisements.
8. Write a short note on experimentation on animals.
9. Explain about fixation of sale prices of bulk drugs.
10. Write a short note on Drug Enquiry Committee.
11. Discuss the conditions for termination of pregnancy and admission.
12. Explain about Right to Information Act.

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QP Code: 11444

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fourth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Organic Chemistry- III

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain elements of symmetry and reactions of chiral molecules with examples.
2. Write the conformational isomerism for cyclohexane. Describe different methods of determination of geometrical isomer configuration.
3. What are heterocyclic compounds? Write any two synthesis and reactions of furan, pyrrole and thiophane.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5=35 Marks**

4. Explain R and S systems of optical isomers.
5. Write a note on stereoselective and stereospecific reactions.
6. Aromaticity of furan and pyrrole.
7. Write one synthesis and reaction of quinoline and isoquinoline.
8. Write about the synthesis and medicinal use of imidazole.
9. Write the synthesis and medicinal use of purine and pyrimidine.
10. Write the reaction of a) Oppenauer-oxidation b) Birch reduction.
11. Explain the metal hydride reduction reactions.
12. Explain the reaction and mechanism of Wolff-Kishner reduction.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fourth Semester B Pharm (SS1) Examination – November 2025

Subject: Medicinal Chemistry - I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any two questions) **2x10=20 Marks**

1. Physicochemical properties in relation to biological action.
2. Classification of adrenergic antagonists, synthesis of tolazoline and propranolol.
3. Classification of cholinergic blocking agents, synthesis of procyclidine hydrochloride and dicyclomine hydrochloride.

Section C

SHORT ESSAY (Answer any seven questions) **7x5=35 Marks**

4. History and development of medicinal chemistry.
5. Give the chemical structure and uses of the following: hydroxyamphetamine, pseudoephedrine, propylhexedrine, ephedrine and metaraminol.
6. Biosynthesis and catabolism of acetylcholine.
7. Chemical structure and uses of: promazine hydrochloride, triflupromazine, thioridazine hydrochloride, piperacetazine hydrochloride, prochlorperazine maleate.
8. SAR and mechanism of action of anticonvulsants.
9. Chemical structure and uses of: chlorprothixene, thiothixene, loxapine succinate, clozapine.
10. Classify general anesthetics, synthesis of halothane.
11. Synthesis of fentanyl citrate and methadone hydrochloride.
12. Classify anti-inflammatory agents, synthesis of mefenamic acid.

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QP Code: 11446

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fourth Semester B. Pharm (SS1) Examination – November 2025

Subject: Physical Pharmaceutics - II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define colloidal dispersions and their general characteristics. Describe the electrical properties of colloids.
2. Define suspension and discuss the factors influencing settling in suspensions.
3. Define and classify emulsion. Explain the theories of emulsion.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5=35 Marks**

4. Explain the terms effect of electrolytes and protective action in the context of colloidal stability.
5. Define Newtonian systems. Describe the capillary viscometer (Ostwald viscometer) for determining the viscosity of a Newtonian fluid.
6. Explain the evaluation parameters for suspensions.
7. What is the difference between number distribution and weight distribution of particles? How is the mean particle size calculated?
8. Describe the fundamental properties of powders.
9. Explain the methods to determine particle size.
10. Define first order kinetics and derive the kinetic order reaction.
11. Explain the photolytic degradation and its prevention.
12. Explain how accelerated stability testing is performed and how it is used in fixing the expiration date of pharmaceutical dosage forms.

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QP Code: 11447

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fourth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacology- I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Discuss about biotransformation of phase I and phase II reactions.
2. Discuss the various theories of drug receptor interactions.
3. Classify sympatholytic with examples. Write the pharmacology of propranolol.

Section C

SHORT NOTES (Answer any SEVEN questions) **7x5=35 Marks**

4. Classify various source of drugs.
5. Pharmacovigilance role in health care system.
6. Classify local anaesthetics. Write the pharmacology of lidocaine.
7. Explain the pharmacology of alcohol.
8. Classify anti-epileptics. Write the pharmacology of phenytoin.
9. Explain the serotonergic transformation in CNS.
10. Classify opioid analgesics. Write the pharmacology of morphine.
11. Discuss the drugs used in treatment of Alzheimer's disease. Write the pharmacology of donepezil.
12. Define drug addiction, dependence and tolerance with examples.

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QP Code: 11448

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fourth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacognosy & Phytochemistry - I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define adulteration. Explain microscopic evaluation of crude drugs.
2. Explain the influence of environmental factors on cultivation of crude drugs.
3. Define plant tissue culture. Explain the importance of tissue culture as source of secondary metabolites.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on sero-taxonomy.
5. Define mutation. Explain the application of mutation to improve quality of medicinal plants.
6. Write a note on organogenesis.
7. Define and classify alkaloids with examples.
8. Write a note on traditional Chinese medicine.
9. Define tannins. Add a note on properties and tests for tannins.
10. What are gums and mucilage? Write biological sources, active constituents and uses of acacia.
11. Write a note on the preparation of gelatin. Write the uses of gelatin.
12. Write a note on the preparation of bromelain. Write the uses of bromelain.

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QP Code:11449

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fifth Semester B. Pharm (SS1) Examination – November 2025

Subject: Medicinal Chemistry- II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define and classify antihistaminics with examples from each class. Outline the synthesis of diphenhydramine hydrochloride and triprolidine HCl.
2. Define and classify diuretics with examples. Explain mechanism of action of loop diuretics. Describe the synthesis of acetazolamide.
3. Classify antihyperlipidemic agents giving examples with structures. Explain the types of hyperlipoproteinemia.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on alkylating agents.
5. Explain the mechanism of action of nitro vasodilators? Give the structure and uses of any two such agents.
6. Explain the mechanism of action of ACE inhibitors with examples.
7. Write a note on oral contraceptives, give examples.
8. Write a note on the metabolism of endogenous estrogens and their uses.
9. Write a note on adrenocorticoids, give examples with their structures.
10. Write a note on glucosidase inhibitors and biguanides.
11. Outline a method of synthesis for dibucaine and benzocaine.
12. Outline a method of synthesis for procaine and give the SAR of local anesthetics.

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QP Code:11450

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fifth Semester B. Pharm (SS1) Examination – November 2025

Subject: Industrial Pharmacy-I

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain in detail the physiochemical properties of drug substance for the formulation of tablets.
2. Enlist various quality control tests of tablets and explain in detail. (6+4)
3. Define capsules. Discuss quality control tests for capsules (2+8)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on flow properties of powders.
5. Write a note on method of preparation of solutions with an example.
6. Explain the different equipment used in the formulation of pellets.
7. What is pyrogen and explain the pyrogen test.
8. Explain the materials used for container and closures.
9. Write the formulation of eye ointments.
10. Explain the formulation and preparation of toothpaste.
11. Write a note on basic parts of valve assembly.
12. Describe the plastic containers.

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QP Code:11451

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fifth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacology- II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Classify antihypertensive drugs. Describe the pharmacology of propranolol
2. Classify diuretics. Write the pharmacology of furosemide.
3. Classify non-steroidal anti-inflammatory drugs with examples. Describe the pharmacology of aspirin.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write the mechanism of action and therapeutic uses of organic nitrates as an anti-anginal drug.
5. Write a note on plasma volume expanders.
6. Describe the physiological and pathological role of histamine.
7. Classify oral hypoglycemic agents with examples.
8. Explain the role of hormones in regulation of plasma calcium level.
9. Write the physiological role of growth hormone.
10. Explain the bioassay of insulin.
11. Mode of action and adverse effects of oral contraceptives
12. Classify tocolytics? Explain the importance and side effects

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QP Code:11452

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Fifth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacognosy and Phytochemistry - II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain different methods for elucidation of biosynthetic pathways.
2. Write the biological source, morphology, microscopy, chemical constituents, uses, substitutes and adulterants of clove.
3. Isolation and detection of active principles, atropine from belladonna and caffeine from tea dust.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write a note on Shikimic acid pathway.
5. Give the biological source and chemical constituents and uses of cinnamon and senna.
6. Describe the isolation, identification and estimation of curcumin.
7. Discuss the industrial production of atropine and write its uses.
8. Explain the industrial production of vinblastine and write its uses.
9. Explain the industrial production and uses of artemisinin.
10. Describe the solid phase extraction.
11. Write the applications of GC and HPTLC.
12. Discuss the super critical fluid extraction method.

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QP Code: 11453

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Biotechnology

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Describe the working principle of biosensors and discuss their applications in the pharmaceutical industry.
2. Explain the applications of recombinant DNA technology in the production of hepatitis B vaccine.
3. Describe the structure and function of major histocompatibility complex (MHC). Discuss the differences between MHC Class I and MHC Class II molecules and their roles in antigen presentation.

Section C

SHORT NOTES (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain protein engineering and its applications in pharmaceuticals.
5. Explain the applications of microbes in industry.
6. Explain the basic steps of the polymerase chain reaction (PCR) and its importance in biotechnology.
7. Write a brief note on applications of recombinant DNA technology and genetic engineering in the production of interferon.
8. Describe the structure of immunoglobulins in detail.
9. Explain the general method for the preparation of viral vaccines.
10. Describe the steps involved in Western blotting, including the role of antibodies in detecting proteins.
11. Define microbial biotransformation and discuss its importance in pharmaceutical biotechnology.
12. Explain the significance of fermenter design and controls in large-scale fermentation processes for the production of biopharmaceuticals.

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QP Code:11454

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Medicinal Chemistry-III

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain the chemistry and SAR of tetracyclines. Write a note on beta lactamase inhibitors. (6+4)
2. Classify anti-malarials with examples. Write down the SAR and synthesis of chloroquine. Write a note on etiology of malaria. (3+4+3)
3. Explain the chemistry of urinary tract anti-infective agents. Write a note on anti-tubercular antibiotics (6+4)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Classify cephalosporins with examples and explain the chemistry of cephalosporins.
5. Outline the synthesis of the following a) Chloramphenicol b) Pamaquine.
6. Classify anti-viral drugs with example. Outline the synthesis of isoniazid.
7. Give the synthesis, mechanism of action and uses of metronidazole.
8. Classification and SAR of sulphonamides.
9. Outline the synthesis and uses of a) Tolnaftate b) Diethyl carbamazine citrate.
10. Concepts and applications of combinatorial chemistry.
11. Write a note on pharmacophore and docking techniques.
12. Write a note on Hemmet's electronic parameters.

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QP Code: 11455

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacology-III

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Classify antiemetics. Explain the mechanism of action and adverse effects of Metoclopramide. (3+4+3)
2. Classify aminoglycoside antibiotics. With a neat, labelled diagram, explain the mechanism and adverse effects of gentamycin. (2+4+4)
3. Classify first line anti-tubercular drugs and explain the mechanism of action of each drug.

Section C

SHORT NOTES (Answer any SEVEN questions) **7x5= 35 Marks**

4. Describe the mechanism of action and adverse effects of theophylline.
5. Classify penicillin's and mention the use of tazobactum.
6. Classify anti-leprotics and mention the adverse effects of clofazimine.
7. With a neat diagram, explain the mechanism of action of cyclosporin.
8. Classify anti-neoplastic drugs.
9. Explain the pharmacology of levamisole.
10. Explain the basic principles in the treatment of poisoning.
11. With a neat diagram, explain the human circadian rhythm affecting various endogenous components.
12. Define chronic toxicity and mention an example of chronic toxicity study.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Herbal Drug Technology

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain different sources of herbs and processing of herbal raw material.
2. Define and classify herb drug interactions. Describe about interactions and side effects of ginseng and Ginkgo biloba.
3. Explain in detail about various natural sources used as binders, viscosity builders and disintegrants.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain in brief regarding identification and authentication of herbal drug.
5. Explain any one nutraceutical for treating diabetes.
6. What are phytosomes? Write the significance of herbal phytosomes.
7. Write a note stability testing on herbal drugs.
8. Discuss on the patenting issue of turmeric.
9. Write a note on regulation of manufacturing ASU drugs.
10. Write the future prospective of herbal drug industry.
11. Write about features of aspect area in herbal industry as per GMP.
12. What are the objectives of schedule T.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define drug distribution. Describe the factors affecting distribution.
2. Discuss the methods of measuring bioavailability.
3. Describe the estimation of pharmacokinetic parameters of one compartment open model for extravascular administration.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the kinetics of protein binding.
5. Write a note on *in–vitro* and *in–vivo* correlation (IVIVC).
6. Differentiate between compartment and physiological model.
7. Draw the blood drug level-time curve for multiple dosing of I.V. bolus injection. Write the relevant equations and explain the terms for Css, max. Css, min and Css, av.
8. What do you mean by the method of residuals?
9. What is the significance of a loading dose in a multiple-dosage regimen? How are loading dose and maintenance dose expressed?
10. Define the Michaelis Menten equation equation. Describe the estimation of Km and Vmax.
11. Define the term non-linear pharmacokinetics and provide its key characteristics.
12. Explain the various factors leading to non-linearity.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Sixth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmaceutical Quality Assurance

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define Total Quality Management (TQM), Enlist the key elements of TQM and explain Deming's 14 points philosophy.
2. a) Explain the points to be considered while selecting a new equipment for a pharmaceutical manufacturing company. (5+5)
   b) How to maintain eating facilities in the pharmaceutical industry?
3. a) Explain the purpose, principle, procedure and limit for arsenic test for glass container
   b) Discuss the consequences of noncompliance for GLP facility.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Describe the process of NABL accreditation with the help of flow chart.
5. Write a note on maintenance of the pharmaceutical aseptic area.
6. Explain the importance of GLP elements.
7. Explain the complaint handling system in the pharmaceutical units.
8. Design a template for standard operating procedure.
9. What content should be included in master formula record explain with details?
10. Write briefly about good warehouse practice.
11. Explain the performance qualification parameters for UV-visible spectrometer.
12. Write a note on validation master plan.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Seventh Semester B. Pharm (SS1) Examination – November 2025

Subject: Instrumental Methods of Analysis

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain the different electronic transitions involved in UV spectrophotometry with examples. Express Beer-Lambert's Law. Write its limitations and deviation.
2. What are the different vibrations occurring in a molecule on IR absorption? Discuss the sampling techniques in IR.
3. Explain the principle of paper chromatography. Describe the steps involved in the process of paper chromatography. Include sample application, solvent selection, and the development of the chromatogram, along with a discussion on how the Rf value is calculated and its significance in compound identification.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write the theory of absorbance, fluorescence, and phosphorescence with a neatly labeled Jablonski diagram.
5. What are the differences between atomic absorption and flame emission spectroscopy?
6. Explain two-dimensional chromatography.
7. Sketch a simple diagram of a GC. List out all components and comment on how the temperature is adjusted.
8. Explain the role, advantages and limitations of each type of detector in HPLC.
9. Compare isocratic and gradient elution techniques by HPLC with examples.
10. Explain the principle and applications of ion exchange chromatography?
11. Describe the process of selecting a suitable gel matrix for gel filtration chromatography.
12. Describe the different types of ligands used in affinity chromatography and provide examples.

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QP Code:11460

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Seventh Semester B. Pharm (SS1) Examination – November 2025

Subject: Industrial Pharmacy- II

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)**	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain in detail about personnel and space requirements in pilot plant set up. (5+5)
2. Describe about TT agencies in India.
3. Explain the general considerations of investigational new drug (IND) application and investigator's brochure (IB). (7+3)

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Discuss in detail process evaluation parameters.
5. Explain different approaches to overcome barriers in technology transfer.
6. Discuss application of biostatistics in pharmaceutical product development.
7. Write the salient features of quality system.
8. Write a note on ISO 14000.
9. Discuss on out of specifications (OOS).
10. List out functions and responsibilities of CDSCO.
11. Discuss on certificate of pharmaceutical product.
12. Describe briefly drug approval process for new drugs.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Seventh Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacy Practice

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Discuss the design and legal requirements for establishment and maintenance of a drug store:
2. Explain different methods for monitoring patient medication adherence and discuss the pharmacist role in the medication adherence.
3. Explain the objectives, functions and policies of the pharmacy and therapeutic committee.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Discuss the role of pharmacists in adverse drug reaction reporting and management.
5. Define therapeutic drug monitoring (TDM) and discuss the need for TDM.
6. Write the difference between drug and poison information centre.
7. Write briefly on rational use of common over-the-counter (OTC) medications.
8. Write a note on budget preparation and implementation.
9. Define clinical pharmacy and discuss the functions and responsibilities of clinical pharmacists.
10. Discuss the role of hospital pharmacist in investigational use of drugs.
11. Explain economic order quantity.
12. Discuss the types of materials stocked in drug store.

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JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Seventh Semester B. Pharm (SS1) Examination – November 2025

Subject: Novel Drug Delivery System

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Define controlled drug delivery systems (CDDS). Explain the approaches to designing controlled release formulations based on diffusion and dissolution principles with suitable diagrams and examples.
2. Define microencapsulation. Explain in detail the various methods of microencapsulation. Write the applications of microencapsulation in drug delivery.
3. Discuss the structure of the skin and the mechanism of drug permeation through it. Elaborate on the various formulation approaches used in the development of transdermal drug delivery systems (TDDS).

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Explain the role and classification of polymers in the formulation of CDDS.
5. Differentiate between microspheres, microcapsules, and microparticles.
6. Write a short note on the formulation and working of metered dose inhalers (MDI).
7. What are permeation enhancers? Give examples of different classes of permeation enhancers used in TDDS.
8. Discuss the concept of monoclonal antibodies and their application in targeted drug delivery.
9. Describe the composition and significance of liposomes and niosomes as novel drug carriers.
10. Explain the concepts and approaches of passive and active targeted drug delivery.
11. Explain the advantages and disadvantages of intrauterine drug delivery systems (IUDDS).
12. Write a note on ocular formulations and ocuserts in ocular drug delivery systems.

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QP Code: 11463

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Eighth Semester B. Pharm (SS1) Examination – November 2025

Subject: Biostatistics and Research Methodology

Time: 3 hours **Max. Marks: 75**

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

Section A: Multiple Choice Questions **(Valued Separately)** 20 Marks
Section B: Long Essay 20 Marks
Section C: Short Essay 35 Marks

Section B

LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. (i). Prepare a Histogram for the following data:

Class Interval	0 - 10	10 - 20	20 - 40	40 - 70
Frequency	5	8	20	24

(3+7)

(ii). Write an essay on measures of dispersion with suitable examples

2. Find the regression of y on x and find the value of y when x = 4

x	1	2	3	4
y	12	4	17	18

3. (i). Write the methodology of how Mann-Whitney U test is performed. (5+ 5)
(ii). What is a pie chart ? Explain with a neat sketch.

Section C

SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write short note on frequency distribution.
5. Write short note on normal distribution.
6. What are the various phases of a clinical trial. Explain.
7. Write short note on Minitab.
8. Write short note on DOE.
9. Write short note on central composite design.
10. Explain 2^3 factorial design.
11. Write a short note on advantages of using factorial designs.
12. Discuss the applications of experimental designs.

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QP Code: 11467

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University)

Eighth Semester B. Pharm (SS1) Examination – November 2025

Subject: Pharmacovigilance

Note: *Draw neat, labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours **Max. Marks: 75**

I. LONG ESSAY (Answer any TWO questions) **2x10=20 Marks**

1. Explain the concept of good clinical practice in pharmacovigilance.
2. Describe the active surveillance methods under pharmacovigilance with case studies.
3. Explain the structure of ATC classification of drugs and international classification of diseases.

II. SHORT ESSAY (Answer any SEVEN questions) **7x5= 35 Marks**

4. Write the importance of safety monitoring of medicines in post-marketing surveillance.
5. Define any five regulatory terminologies for pharmacovigilance.
6. Describe the calculation of defined daily dose with an example.
7. Write a short note on EudraVigilance Medicinal Product Dictionary (EVMPD).
8. Describe the case-control study design with a case study.
9. Write the importance of effective communication in pharmacovigilance.
10. Explain the procedure and timelines to report adverse events during the clinical trials.
11. Describe the structure of CIOMS working group.
12. Write a short note on requirements under Schedule Y.

III. SHORT ANSWERS (Answer ALL questions) **10x2=20 Marks**

13. What are specialized resources for ADRs?
14. When and where the Pharmacovigilance Progarmme of India (PvPI) was started?
15. Name any two WHO collaborating centres for pharmacovigilance activities.
16. How to predict adverse drug reactions?
17. What is the difference between an ADR and a side effect.
18. Write the full forms of MedDRA and WHO-UMC.
19. Define vaccine pharmacovigilance.
20. Name any two pharmacovigilance databases.
21. What are the timelines for periodic safety update reports?
22. Name any four medications which are contraindicated in pregnancy.

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