

JSS UNIVERSITY, MYSURU

Second Year B.Pharm Examination - May 2016

Subject: Physical Pharmaceutics

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. What is polymorphism? Explain its significance in pharmacy.
2. Describe the method of accelerated stability testing of pharmaceutical dosage forms.
3. Classify colloids. Write a comparative account of their general properties.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. What is meant by protein binding of drugs? Explain with example.
5. Explain the methods for determining the flow properties of powder.
6. Write Hildebrand-Scatchard equation and explain the terms. What are its applications?
7. Explain the importance of thixotropy in formulations.
8. How is order of reaction determined?
9. How is stability of suspensions measured?
10. Classify dispersed systems. Add a note on their general characteristics.
11. Describe the types of suspending agents with example.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define solubility in qualitative and quantitative terms.
13. Define surface tension. What is it due to?
14. What is meant by specific surface?
15. Define kinematic viscosity.
16. What is meant by zero order kinetics?
17. Write a note on protective action of colloids.
18. What is meant by organic molecular complexes?

JSS UNIVERSITY, MYURU

Second Year B.Pharm Examination - May 2016

Subject: Pharmaceutical Organic Chemistry-II

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions) 2x15=30 Marks

1. a) What is resolution of racemic mixture? Explain the methods of resolution of racemic mixture with suitable examples. (10+5)
b) Write a note on asymmetric synthesis.
2. a) Define and classify heterocyclic compounds with suitable examples. (7+8)
b) Explain the system of nomenclature in heterocyclic compounds with examples.
3. a) Define and classify carbohydrates with examples. (7+8)
b) Explain the methods to determine open chain structure of glucose.

II. SHORT ESSAY (Answer any six questions) 6x5=30 Marks

4. Explain R & S configuration with examples.
5. Define stereo-specific and stereo-selective reactions with examples.
6. Classify proteins with examples.
7. Write reaction and mechanism involved in Skraup quinoline synthesis.
8. Explain the electrophilic substitution reaction of furan.
9. Describe the Oppenauer reaction with suitable example.
10. Explain the method to determine the sequential arrangement of amino acids in peptides from N-terminal end.
11. Write the Haworth and Diels-Alder synthesis of naphthalene.

III. SHORT ANSWERS (Answer any five questions) 5x2=10 Marks

12. What is Clemmensen reduction?
13. Define acid value. What is its significance?
14. Write structure and uses of any one imidazole containing medicinal compound.
15. Oxidation reactions of phenanthrene.
16. Write structure and uses of lactose.
17. Chemically differentiate fats and oils.
18. Write structure of any two essential amino acids.

JSS UNIVERSITY, MYSURU
Second Year B.Pharm Examination - May 2016

Subject: Applied Biochemistry

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Write the definition, nomenclature and IUB classification of enzymes. Explain the factors affecting enzyme activity. (8+7)
2. Define HMP shunt. Explain in detail HMP shunt with its significance and reaction. Briefly explain about glycogen storage diseases. (2+8+5)
3. What are lipids? Classify them with examples. Describe the β -oxidation of saturated fatty acids. (2+5+8)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Transcription.
5. Definition, classification, and biological role of amino acids.
6. Write the chemistry of phospholipids and sphingolipids.
7. Structure of DNA.
8. Ketosis.
9. Cell organelles and its biochemical function.
10. Renal function test.
11. Porphyrins.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define glycogenolysis
13. What are lipid profile tests?
14. What is a co-enzyme?
15. Name the aliphatic amino acids.
16. What are allosteric enzymes? Give examples.
17. Role of kidney.
18. What are nucleosides?

JSS UNIVERSITY, MYSURU

Second Year B.Pharm Examination - May 2016

Subject: Pathophysiology

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Explain the aetiology, pathogenesis, clinical signs and symptoms of congestive cardiac failure (CCF) and hypertension. (7+8)
2. Classify neoplasms. Explain aetiology of cancer. Add a note on spread and growth of tumor. (4+6+5)
3. Explain pathogenesis, signs and symptoms of: (7+8)
a) Parkinsonism b) Peptic ulcer.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. List the chemical mediators and explain their role in acute inflammation.
5. Draw a neat labeled diagram of HIV. Add a note on transmission of AIDS.
6. Explain aetiology and pathogenesis of schizophrenia.
7. Explain pathogenesis of gastroenteritis.
8. Write in detail type III and IV hypersensitivity reactions.
9. Explain the mechanism of rejection of allograft.
10. Explain aetiology and pathogenesis of asthma.
11. Describe the pathogenesis of acute inflammation.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Distinguish between benign and malignant tumors.
13. Complications of hepatitis.
14. Difference between hypertrophy and hyperplasia.
15. Name organisms which cause STD.
16. Name four factors that influence wound healing.
17. Causative organism for tuberculosis, leprosy and AIDS.
18. What are autoimmune disorders?

JSS UNIVERSITY, MYSURU

Third Year B.Pharm Examination - May 2016

Subject: Medicinal Chemistry-I

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. Define and classify local anesthetics. Explain their structure activity relationship (SAR). Write the mechanism and synthesis of benzocaine. (4+4+7)
2. Describe the physicochemical properties in relation to biological activity.
3. What are anticonvulsants? Classify them with examples. Explain their SAR and mechanisms of action. (2+5+8)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Write the structure and uses of four β -adrenergic blocking agents.
5. Give the mechanism of action and synthesis of acetazolamide.
6. Give an account of chemistry and biological activity of cholinergic agents.
7. Write a note on anti-hyperlipidemic agents.
8. Explain the SAR of barbiturates.
9. Give the classification of NSAIDs with examples.
10. What are antipsychotic agents? Give the synthesis of promazine hydrochloride.
11. What are antiarrhythmic agents? Classify them with examples.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Structure and uses of phenylephrine.
13. MAO inhibitors.
14. Structure and uses of amiloride.
15. Synthesis of warfarine.
16. Mechanism of action and uses of atropine sulphate.
17. Synthesis of acetylcholine.
18. Synthesis of methadone hydrochloride.

JSS UNIVERSITY, MYSURU
Third Year B.Pharm Examination - May 2016
Subject: Pharmacology-I

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Classify antihypertensive drugs with suitable examples. Write the pharmacological actions, mechanism of action, adverse reactions and therapeutic uses of one antihypertensive drug in detail. (5+10)
2. What are receptors? Classify and explain the types of receptors with suitable examples. (2+13)
3. Classify anti-arrhythmic drugs with examples. Describe the pharmacology of one anti-arrhythmic drug in detail. 5+10)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Write a note on drug interactions.
5. What are mucolytics? Give examples.
6. Write short note on warfarin sodium.
7. What are anti-anginal drugs? Give examples.
8. Write a note on anti-parkinsonism drugs.
9. Explain drug tolerance and dependence with examples.
10. Write short note on neuromuscular blocking agents.
11. Classify local anaesthetic agents with suitable examples. Explain their mechanism of action.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What are pre-clinical and clinical studies?
13. Uses of phenytoin.
14. Mechanism of action of heparin.
15. What are diuretics? Give two examples
16. What are expectorants? Give two examples
17. Drugs used in congestive cardiac failure (CCF).
18. What are statins?

JSS UNIVERSITY, MYSURU**Third Year B.Pharm Examination - May 2016****Subject: Pharmacognosy & Phytochemistry***Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.***Time: 3 hours****Max. Marks: 70****I. LONG ESSAY (Answer any two questions)****2x15=30 Marks**

1. Define crude drug. Write methods of classification of crude drugs with examples (2+13)
2. Write the history, present status, scope and development of pharmacognosy in natural product research.
3. Describe the complete pharmacognostic study of rauwolfia.

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Define volatile oils. Classify with examples. Write a note on terpenoid volatile oils.
5. Explain the pharmacognosy of gum acacia.
6. Define evaluation. Explain the microscopic evaluation of crude drugs.
7. Describe the exogenous factors affecting cultivation of crude drugs.
8. Define saponins. Write the pharmacognosy of liquorice.
9. Write the life cycle of ergot fungus.
10. Write the structures of a) Atropine b) Quinine c) Caffeine d) Reserpine e) Barbaloin.
11. Write the cultivation technology of opium.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Write any two chemical tests for cotton.
13. Write the biological source and uses of ephedra and eucalyptus
14. Write a short note on conservation of medicinal plants.
15. Define polyploidy and hybridization with examples.
16. Write the chemistry of volatile oils.
17. Define pseudoalkaloids. Give examples.
18. Write a short note on kaolin.

JSS UNIVERSITY, MYSURU

Third Year B.Pharm Examination - May 2016

Subject: Pharmaceutical Biotechnology

Note: Draw neat labeled diagrams wherever necessary.

Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Define and classify sterilization. Explain dry heat and moist heat sterilization with merits and demerits. (7+8)
2. Write the official procedure for microbiological assay of antibiotics.
3. Define and classify enzymes. Explain immobilization techniques with applications. (2+4+9)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Define culture media. Write about common ingredients of culture media.
5. Define hypersensitivity. Add a note on types of hypersensitivity.
6. What are the mechanisms involved in auto-immune disorders?
7. Explain the production of insulin by genetic engineering.
8. How is the microbiology laboratory sterilized?
9. Write about reproduction in bacteria.
10. Write a note on enzyme-linked immunosorbent assay (**ELISA**).
11. Write the production and evaluation of BCG vaccine.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What are differences between flagella and pili?
13. Applications of monoclonal antibodies.
14. Differentiate bactericidal and bacteriostatic agents.
15. What is total and viable bacterial count?
16. What are the causative agents of cholera and syphilis?
17. Define exotoxin and endotoxin.
18. Define microbial biotransformation.

JSS UNIVERSITY, MYSURU

Third Year B.Pharm Examination - May 2016

Subject: Quality Assurance

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe the criterion for equipment selection. Explain the purchase specification and maintenance of stores for raw materials. (5+10)
2. Write a note on drug regulatory aspects of India.
3. Describe the NABL accreditation procedure for drug testing laboratory.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Write a note on quality audit and steps involved in carrying out the audits.
5. Write a note on GATT policy.
6. What are packaging materials? Classify them and explain their quality control tests.
7. Compare and contrast batch formula record and master formula record.
8. Write the importance of validation of analytical equipments.
9. Concept and importance of TQM.
10. What is GLP? Explain its importance.
11. Describe the handling of returned goods.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What is ISO certification?
13. What is SOP? List the components of SOP.
14. Write a note on maintenance of sterile areas.
15. What is patent? What are the types of patent?
16. Give the importance of training, hygiene and personal records.
17. Give the significance of distribution records.
18. Methods of waste disposal.

JSS UNIVERSITY, MYSURU

Third Year B.Pharm Examination - May 2016

Subject: Biopharmaceutics & Pharmacokinetics

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. a) Name factors affecting drug absorption through GIT. (5+10)
b) Describe in detail about pharmaceutical factors that affect drug absorption.
2. a) Describe in vitro - in vivo correlation in bioavailability studies. (7+8)
b) List the study designs used in bioequivalent studies. Explain in brief any two.
3. a) Explain the assumptions, schematic representation, equations and applications of first order absorption kinetics. (10 +5)
b) Derive an expression for calculation of plasma elimination half life for one compartment open model drug disposition for intra-venous administration of drug.

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. What is sink condition? How is it maintained in vitro and in vivo? Write its applications.
5. Explain pH-partition hypothesis.
6. Describe the carrier mediated transport of drugs across GIT.
7. Explain the method of fixing loading dose in multiple oral dosing.
8. Explain the dose adjustments in obese patients.
9. Describe drug-food interactions with examples.
10. Explain BCS classification of drugs with examples.
11. Define biomarkers with examples. Write their applications.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Dissolution studies are required legally for all drugs. True or false. Explain.
13. What are chemical and therapeutic equivalents? Give examples.
14. Applications of Donnan membrane equilibrium.
15. Bioequivalence studies are not necessary for elixirs. Why?
16. What is compartment? Give its characteristics.
17. For lipid soluble drugs, distribution is perfusion rate limited. Explain.
18. Why is loading dose required in case of patients with renal disease?

JSS UNIVERSITY, MYSURU**Final Year B.Pharm Examination - May 2016****Subject: Medicinal Chemistry-II**

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

Time: 3 hours**Max. Marks: 70****I. LONG ESSAY (Answer any two questions)****2x15=30 Marks**

1. Give an account of parameters and equations used in QSAR studies. (12+3)
Write its advantages over traditional analog development.
2. Describe with examples the SAR of quinolones and write their (12+3)
therapeutic uses. Outline the synthesis of nalidixic acid.
3. Elucidate the structures of ephedrine and menthol with important (8+7)
degradative reactions.

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. What is molecular modeling? Write its merits.
5. Write the therapeutic uses of anti-amoebic agents.
6. Write the currently used drugs in the treatment of tuberculosis.
7. Write the SAR of tetracyclines.
8. Write the therapeutic uses of penicillins.
9. Outline the synthesis and uses of dapsone.
10. Write the mode of action and important uses of antibiotics used in the
treatment of cancer.
11. Write the SAR of H1 antagonists.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. What is combinatorial synthesis?
13. What are prodrugs?
14. Write the structure and uses of benzalkonium chloride.
15. Write the interrelationship of methylxanthines.
16. Write the synthesis of mechlorethamine.
17. Write the mode of action of sulphonamides.
18. Write the uses of proton pump inhibitors.

JSS UNIVERSITY, MYSURU
Final Year B.Pharm Examination - May 2016
Subject: Pharmacology-II

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. Classify non-steroidal anti-inflammatory drugs with examples. Write the mechanism of action, pharmacological actions and adverse effects of salicylates. (5+10)
2. Describe the life cycle of malarial parasite. Classify anti-malarial drugs. Explain the mechanism of action and adverse effects of chloroquine. (6+4+5)
3. Define bioassay. Write the principles and applications of bioassay. Write the methods of bioassay with suitable examples (2+4+9)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Write a note on drugs used in treatment of leprosy.
5. Explain the mechanisms by which organisms develop resistance to antibiotics.
6. Write a note on proton-pump inhibitors in ulcer therapy.
7. Explain the mechanism of action and adverse effects of anti-metabolites used in cancer chemotherapy.
8. Write the general principles in management of poisoning.
9. Classify anti-histamines with examples and write the therapeutic uses of anti-histamines.
10. Write a note on insulin preparations.
11. Classify the drugs used in constipation. Explain the pharmacology of stimulant purgatives.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Explain the triple response of histamine.
13. Write the major adverse effects of tetracyclines and chloramphenicol.
14. Enlist the therapeutic uses of immunosuppressants.
15. Name the pituitary hormones and disorders of pituitary gland.
16. Write the actions of cholecystokinin.
17. Write the mechanism of action of imidazole antifungal agents.
18. Name the chelating agents used in management of heavy metal poisoning and specify their use.

JSS UNIVERSITY, MYSURU
Final Year B.Pharm Examination - May 2016
Subject: Advanced Pharmacognosy

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Explain the biogenesis of morphine and atropine. (10+5)
2. Write an account on enzymes including their properties, isolation techniques and purification methods.
3. Explain modern methods of extraction of phytoconstituents. Give a detailed account of spectroscopic methods. (10+5)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Describe the method of isolation, identification and estimation of sennoside.
5. What is tissue culture? Explain the application of tissue culture technique in pharmacognosy with special importance to the production of secondary metabolites.
6. Method of preparation of aristas and churna.
7. Anti-HIV natural products.
8. Biological screening methods for hepatoprotective activity.
9. Classify allergens and write a note on allergenic extracts.
10. Biological source, method of preparation and uses of trypsin and asperaginase.
11. Biological screening methods for anti inflammatory activity.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What is supercritical fluid extraction?
13. What is hairy root culture?
14. Define electrophoresis. Give its applications.
15. Biological source, chemical nature and uses of pectinase.
16. Define asava and bhasma.
17. Advantages and limitation of HPTLC.
18. What is competitive feeding?

JSS UNIVERSITY, MYSURU

Final Year B.Pharm Examination - May 2016

Subject: Formulative & Industrial Pharmacy

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. Define controlled delivery systems. Write its objectives, advantages and disadvantages of controlled delivery systems. Explain the types of controlled delivery systems with suitable examples. (2+3+3+3+4)
2. Describe the different types of coating. Explain the sugar coating process and explain the process variables that are required to be controlled during the coating process. (3+7+5)
3. Describe the techniques used for the preparation of microcapsules. Explain the coacervation and air suspension techniques used for microencapsulation. (3+6+6)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Describe osmotic drug delivery systems.
5. Objectives of photo stability testing studies.
6. Packaging of aerosols.
7. Quality control studies of herbal formulations.
8. Chemical properties affecting the stability of formulations.
9. Write a note on preparation of lipsticks.
10. Preparation of hard gelatin capsules and its evaluation.
11. Evaluation of parenteral preparations.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Differentiate between water for injection and sterile water for injection.
13. Advantages of transdermal drug delivery systems.
14. Requirements of ophthalmic preparations.
15. Short term stability studies.
16. Mottling and double impression.
17. Propellants used in aerosols.
18. Sources of contamination in aseptic area.

JSS UNIVERSITY, MYSURU
Final Year B.Pharm Examination - May 2016

Subject: Instrumental Methods of Analysis

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Classify the chromatographic methods. Explain the theory and instrumentation of HPLC. (5+10)
2. Describe the construction, working and applications of standard hydrogen electrode. Add a note on potentiometric titrations. (10+5)
3. Explain the construction and working of a double beam UV-visible spectrophotometer.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain the sample handling techniques in infra red (IR) spectroscopy.
5. Write the general principle involved in the nephelometric and turbidometric analysis.
6. Explain the derivatisation techniques employed in gas chromatography.
7. Define and distinguish between fluorescence and phosphorescence. Write the factors affecting the phenomenon of fluorescence.
8. Explain conductometric titrations and give its applications.
9. Write a note on polarography.
10. Explain the validation processes and its importance in pharmaceutical industries.
11. Mention the factors affecting electrophoretic mobility of ions.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define extinction coefficient and molar extinction coefficient.
13. Define with examples a) chromophores b) auxochromes
14. Enumerate the sources of IR radiation.
15. Write Van Deemter equation and give its importance.
16. Applications of x-ray diffraction studies.
17. Name the adsorbents and visualizing agents used in TLC.
18. What are reference and indicator electrodes? Give examples for each.

JSS UNIVERSITY, MYSURU**Final Year B.Pharm Examination - May 2016****Subject: Pharmacy Practice**

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

Time: 3 hours**Max. Marks: 70****I. LONG ESSAY (Answer any two questions)****2x15=30 Marks**

1. Describe the type of hospitals based on clinical and non-clinical basis. (8+7)
Explain the organizational structure of large hospital.
2. Explain the role of pharmacy and therapeutic committee (PTC) in the development of hospital formulary, adverse drug reaction and emergency drug list preparation.
3. Define patient counselling. Explain the steps in patient counselling and the skills needed for counselling. (2+7+6)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Describe the responsibilities and functions of hospital pharmacists.
5. Describe the drug distribution system for inpatients.
6. Explain preparation of isotopes in laboratory.
7. Describe the role of pharmacist in education and training.
8. Explain the sources of drug information.
9. Mention the causes of medication non-adherence and methods for monitoring it.
10. What is prescribed medication order? Mention the legal requirements.
11. Explain code of ethics for community pharmacy.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. What is medication history interview?
13. Mention the barriers involved in communication.
14. What is economic ordering quantity (EOQ)?
15. What is automatic stop order?
16. What is the need for therapeutic drug monitoring (TDM)?
17. Mention the examples for beneficial drug interactions.
18. Enumerate the records to be maintained at community pharmacies.

JSS UNIVERSITY, MYSURU

First Year B.Pharm (RS1) Examination - May 2016

Subject: Human Anatomy & Physiology

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. a) Draw a neat labeled diagram of interior structure of the heart. (5+10)
b) Define cardiac cycle and explain the principal events of cardiac cycle.
2. Enumerate the hormones secreted by the pituitary gland. Describe how their secretion is regulated and their physiological role. (5+10)
3. a) Write the composition and functions of blood. (5+10)
b) What are the factors required in coagulation? Describe the mechanism of blood coagulation.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Write the physiology of liver.
5. Explain the process of urine formation.
6. Draw a neat labeled diagram of cross- section of eye and add a note on photoreceptors.
7. What are joints? Classify joints with examples.
8. List the functions of hypothalamus and medulla oblongata.
9. Describe the physiology of muscle contraction.
10. Explain the mechanism of respiration.
11. Describe the phases of menstrual cycle.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Functions of spleen.
13. Classification and functions of bone.
14. Functions of cranial nerves.
15. What is vital capacity? Write its normal value.
16. Properties of cardiac muscle.
17. Addison's disease.
18. Basal ganglia.

JSS UNIVERSITY, MYSURU
First Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmaceutical Chemistry-I

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. Define the term hybridization. Explain types of hybridization in carbon compounds with examples. (2+13)
2. a) Define and classify non-aqueous titration. (6+9)
b) Describe the types of solvents used in non-aqueous titration.
3. a) Describe Mohr's and Fajan's method.
b) Define and classify complexometric titrations.

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Describe the addition reaction in conjugated dienes.
5. Describe Bayers strain theory.
6. Explain Cannizaro and crossed-Cannizaro reaction.
7. Explain mechanism of halogenations of alcohols. Describe selectivity of halogen in this reaction.
8. Explain Sachse-Mohr's theory.
9. Explain the steps involved in gravimetric analysis.
10. Preparations and standardization of ceric-ammonium sulphate.
11. Define error and its types.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Give the structural formula and IUPAC name of acetic acid.
13. Write about Saytzeff's rule.
14. Allylic rearrangement.
15. Define structural isomerism.
16. Chloride limit test.
17. Classification of acid base titration.
18. Sources of impurities in pharmaceutical substances.

JSS UNIVERSITY, MYSURU
First Year B.Pharm (RS1) Examination - May 2016

Subject: Biochemistry

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Give the major steps involved in the messenger RNA transcription.
2. Outline the major reactions of aerobic glycolysis in the liver with reference to the enzymes and co-factors that participate in the process with the help of a schematic representation.
3. With a suitable diagram, give the principal reactions of the pentose phosphate pathway. Name the enzymes and co-factors involved. (12+3)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain stepwise, how many moles of ATP are formed on complete oxidation of one mole of glucose.
5. Write a note on the structure and functions of major phospholipids.
6. Name the ketone bodies and give their clinical significance.
7. Give the IUB scheme of classification and nomenclature of enzymes.
8. Describe the Watson and Crick model of DNA.
9. Write a note on bromsulphalein excretion test.
10. Explain glycerol-phosphate shuttle.
11. Explain briefly the genetic code.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What are isoenzymes? Give examples.
13. Role of vitamin D.
14. Essential amino acids.
15. Significance of anaplerosis.
16. Redox potential.
17. Disorders of urea cycle.
18. Glycolysis and its energetic.

JSS UNIVERSITY, MYSURU**First Year B.Pharm (RS1) Examination - May 2016****Subject: Physical Pharmaceutics**

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. a) Explain the methods used to determine the order of reaction. (8+7)
b) Describe the factors affecting the rate of reaction.
2. Classify colloids. Explain the properties of colloids. (5+10)
3. Describe the types of complexes. What are the methods to analyze complexes? (5+10)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Describe the principle and procedure of drop count method to determine surface tension of a liquid.
5. Explain the pharmaceutical applications of adsorbents.
6. Differentiate flocculated and deflocculated suspension.
7. Write a note on creaming and breaking of emulsions.
8. Classify surfactants with suitable examples.
9. Explain the particle size measurement by microscopic method.
10. Significance of rheology in pharmacy.
11. Describe the Newtonian and non-Newtonian fluids in rheology.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Define phase equilibria.
13. Define surface tension.
14. Define thixotropy.
15. Write note on gold number with examples.
16. Define Brownian movement.
17. What is dilatant flow.
18. Write a note on amorphous and polymorphic forms of particles.

JSS UNIVERSITY, MYSURU
First Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmacognosy

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe the pharmacognostical study of ginger.
2. Explain the plant fibers used as surgical dressings. Describe methods of preparation of cotton and silk. (5+5+5)
3. Explain the source, cultivation, collection, method of preparation, chemical constituents, adulterants and uses of kurchi.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain the factor influencing cultivation of medicinal plants.
5. Quantitative microscopy of mentha and cinnamon.
6. Describe the processing and storage of crude drugs.
7. Write the biological source, chemical constituents and uses of senna.
8. Write the life cycle of ergot.
9. Explain the preparation of sutures.
10. Describe the microscopy of ephedra with a neat labeled diagram.
11. Write the chemical test for the identification of squill.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define plant hormones and their application.
13. Write the chemical test for the identification of castor oil.
14. Describe the chemical constituents and uses of gokhru.
15. Write a note on spirulina.
16. Write the adulterants, chemical constituents and uses of clove.
17. Define the chemical constituents and uses of turmeric.
18. Write the microscopical character and uses of cardamom.

JSS UNIVERSITY, MYSURU
Second Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmaceutics

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Define prescription. Explain the parts of a prescription with an example.
2. Define emulsion. Describe instabilities of an emulsion with their causes and precautions to avoid them. (2+13)
3. Define suppository. Describe the preparation, packaging and evaluation of suppositories.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Describe the formulation of indiffusible suspensions with one example.
5. Classify powders. Describe simple and compound powders with example.
6. Describe the formulation and preparation of nasal drop.
7. Define maceration. Differentiate simple and modified maceration.
8. Explain the process involved in the preparation of pellets using extrusion and spheronization technique.
9. Describe the methods of preparation for ointments.
10. Describe the preparation of surgical catgut.
11. Explain the salient features of latest edition of Indian pharmacopoeia.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Give the comparison between infusion and decoction process.
13. Differentiate between gargle and mouth wash.
14. Find the strength of 95% v/v alcohol in terms of proof spirit.
15. Differentiate between tolerated and adjusted incompatibility.
16. Write the applications of bioadhesive drug delivery systems.
17. Write short note on transdermal drug delivery systems.
18. What are organoleptic additives? Give examples.

JSS UNIVERSITY, MYSURU
Second Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmaceutical Chemistry - II

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Define the term aromaticity and explain Huckel's rule. Describe the mechanism of Friedel craft alkylation and acylation in benzene. (7+8)
2. What are polynuclear hydrocarbons? Outline the synthesis and chemical reactions of naphthalene. (3+12)
3. Outline the synthesis and chemical reactions of pyrrole. Explain why pyrrole is less basic compared to pyridine. (10+5)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Outline the general methods of preparation of phenols.
5. Explain the Clemmensen reduction with mechanism.
6. Differentiate between enantiomers and diastereoisomers with examples.
7. Give the chemical reactions of diphenylmethane.
8. Explain Fisher indole synthesis with mechanism.
9. With suitable examples explain asymmetric synthesis.
10. Give the principle and significance of saponification value.
11. Describe the stereochemistry of biphenyl compounds.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Write structure and medicinal uses of any one naphthalene derivative.
13. Synthetic uses of diazonium salts.
14. What are fats and oils?
15. Define optical isomers.
16. Write Kolbe reaction of phenol.
17. Write the structure of imidazole and oxazole.
18. Give one example for Wolff Kishner reduction reaction.

JSS UNIVERSITY, MYSURU
Second Year B.Pharm (RS1) Examination - May 2016
Subject: Industrial Pharmacognosy

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe the role of chromatographic techniques employed in the isolation and purification of phytoconstituents.
2. Explain basic metabolic pathway leading to the biosynthesis of chemical constituents. Add a note on competitive feeding. (10+5)
3. General methods of isolation and purification of enzymes.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Principle and its applications HPTLC.
5. Describe herbs used in hair care and write its importance.
6. Write the principle and mode of treatment by siddha.
7. WHO guidelines for the assessment of herbal drugs.
8. Biological source, chemical constituents and uses of hibiscus and sandalwood.
9. Methods of isolation of protoplast culture.
10. Write a note on herb-drug interaction
11. Explain natural allergens.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Source and uses of turmeric.
13. Short note on hallucinogens.
14. Comment henna as hair care herb.
15. Radioactive half life and its significance.
16. Define ghutika and leha.
17. Hairy root culture.
18. Biological source and uses of papain.

JSS UNIVERSITY, MYSURU

Second Year B.Pharm (RS1) Examination - May 2016

Subject: Biostatistics & Computer Applications

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. a) Calculate the coefficient of variation from the following data:

X: 16, 18, 15, 13, 17.

- b) The following data collected on the age of a group of government employees. Calculate the mean and standard deviation:

Year	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of Employees	170	110	80	45	40	30	35

- c) Define three types of mean and write down their merits and demerits.

2. Describe computer operating systems.

3. a) The profits of a pharmaceutical company for five years are shown below:

Year	1	2	3	4	5
Profit in lakhs Rs.	1250	1400	1650	1950	2300

Construct the histogram and bar chart for the above data.

- b) A person is known to hit the target in 4 out of 5 shots. Whereas another person is known to hit the target in 3 out of 4 shots. Find the probability of the target being hit at all when they both try.
- c) Explain the types of printers.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Find the mean, median and mode of:

Height (in cms)	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	18	22	40	36	31	20	13

5. A bag contains 5 white 7 red and 6 black balls. Find the chance that three balls drawn at random are all black.
6. In an investigation into the health of children and nutrition of two groups of children of different social status, the following results are obtained.

	Poor	Well-to-do	Total
Below normal	130	20	150
Normal	102	108	210
Above normal	24	96	120
Total	256	224	480

Describe the relation between the weights of children and their social status.

7. Explain the methods of data collection.
8. Define histogram, frequency polygon, cumulative frequency polygon.
9. What is regression analysis?
10. List the components of computer.
11. List the types of network topologies in detail.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Write the merits and demerits of random sampling.
13. Define probability.
14. Name three input and output devices.
15. Application of computers in drug design.
16. Define header and footer.
17. List the types of toolbars and its components.
18. Define mail merge and its uses.

JSS UNIVERSITY, MYSURU

Second Year B.Pharm (RS1) Examination - May 2016

Subject: Social Pharmacy and Behavioural Science

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Explain the career opportunities available to pharmacy graduates in India.
2. What procedure is followed for procuring medicines in government health facilities?
3. Giving examples describe the development of effective curriculum vitae (CV).

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Briefly narrate the factors that motivate the employees.
5. What are the barriers in communication?
6. Explain how the social pharmacy is relevant in Indian context.
7. Compare attitude Vs skill in achieving success.
8. What are the functions of clinical pharmacists?
9. What are the Do's and Don'ts during preparation to attend an interview?
10. How do you explain the value of time?
11. Why should pharmacists possess good communication skills?

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What is SMART objective concept?
13. What is patient's medication record?
14. What is 'creating no blame culture' concept?
15. What are the eligible qualifications for registration as pharmacists?
16. What is Gantt chart?
17. What is meant by rational use of medicines?
18. What is group discussion?

JSS UNIVERSITY, MYSURU
Second Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmaceutical Jurisprudence

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Explain the manufacture alcoholic preparations outside bond with offences and penalties.
2. Describe the latest drug price control order (DPCO) and its amendments.
3. Describe the regulatory approval process for new drug application (NDA).

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Give the qualifications and duties of a government analyst.
5. Write a note on international conference on harmonization (ICH).
6. How is first register prepared? What are the provisions for removal of names?
7. Describe manufacture, sale and export of opium.
8. Explain code of ethics of pharmacists in relation to medical profession.
9. What are the steps involved in drug development process?
10. Describe repacking license.
11. Describe the constitution and functions of state pharmacy council.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define narcotic drugs.
13. Who is a drug inspector?
14. What are the objectives of drug enquiry committee?
15. Define adulterated drugs.
16. What is meant by ANDA?
17. Give the phases of clinical trial with its specific objectives.
18. Who is excise officer?

JSS UNIVERSITY, MYSURU

Third Year B.Pharm (RS1) Examination - May 2016

Subject: Medicinal Chemistry - I

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. What are cholinergic blocking agents? Classify them with examples. Describe the SAR of cholinergic blocking agents. Write the synthesis of dicyclomine hydrochloride and procyclidine hydrochloride. (2+3+4+6)
2. Define sedative and hypnotics. Classify them with examples. Explain the SAR of barbiturates. Give the synthesis of diazepam and barbital. (2+3+4+6)
3. Classify cardiovascular agents with examples. Explain the mechanism of action of calcium channel blockers and vasodilators. Write the synthesis of nitroglycerin and isosorbide dinitrate. (5+4+6)

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Classify diuretics with examples. Explain the mechanism of action of carbonic anhydrase inhibitors.
5. Classify local anesthetics with examples. Outline the synthesis of lidocaine.
6. Describe how drug action is influenced by protein binding and chelation.
7. What are parasympathomimetic agents? How are they classified? Outline the synthesis of pyridostigmine.
8. Classify anticonvulsants with examples. Explain the synthesis of phenytoin.
9. Describe the SAR of phenothiazines.
10. Classify CNS stimulants with examples. Outline the synthesis of nikethamide.
11. Describe the biosynthesis of adrenergic neurotransmitters.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Write the structure and uses of clonidine and halothane.
13. Name any four antidiarrhoeal agents.
14. Mention the factors affecting drug metabolism.
15. What are skeletal muscle relaxants? Give examples.
16. Write the synthesis for tolazoline.
17. What are thyroid and antithyroid agents? Give one example for each.
18. Write the structure and uses of warfarin and acetylcholine.

JSS UNIVERSITY, MYSURU

Third Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmacology - I

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. a) Enumerate the mechanisms of drug action. (5+5+5)
b) Explain receptor occupation theory.
c) Explain any one transducer mechanism.
2. a) Explain non-synthetic reaction in the biotransformation of drug. (5+5+5)
b) Describe renal excretion of drug.
c) Explain with suitable example side effects and toxic effects.
3. a) Describe the steps of neuro-humoral transmission. (5+10)
b) Classify anticholinestrase drugs with suitable examples. Explain the mechanism of anticholinestrase drugs.

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. Explain pre-anesthetic medication.
5. Explain the mechanism and adverse effects of a selective serotonin reuptake inhibitor.
6. Classify antiepileptic drugs with suitable examples.
7. Classify antihypertensive drugs with suitable examples.
8. Explain the mechanism of action of cardiac glycosides.
9. Explain how statins are useful in the management of hyperlipdemia.
10. Explain the uses of fibrinolytic.
11. Name oral and injectable iron preparation and their uses.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Disadvantages of enteral route of drug administration.
13. Advantages of aerosol route of drug administration.
14. Blood placental barrier.
15. Physiological factors affecting absorption of drug.
16. Tachyphylaxis.
17. Significance of phase I clinical trial.
18. Role of ion channels in the drug action.

JSS UNIVERSITY, MYSURU
Third Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmaceutical Engineering

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)**2x15=30 Marks**

1. a) With a neat labeled diagram, explain the principle, construction, working, advantages and disadvantages of ball mill. (8 +7)
b) Define size reduction. Describe factors affecting size reduction process.
2. a) Describe Mier's supersaturation theory of crystallization with applications. (7 +8)
b) Giving a neat labeled diagram, describe construction and working of Swenson walker crystallizer
3. a) Define distillation and evaporation. Describe the principle and theory involved in azeotropic distillation (8 +7)
b) Write a note on molecular distillation

II. SHORT ESSAY (Answer any six questions)**6x5=30 Marks**

4. What are the modes of size separation? Explain the methods of size separation.
5. Explain with the help of a diagram, principle, construction and working of meta filter.
6. What is vortex? Explain the measures to prevent vortex.
7. Describe the principle and working of any one large scale centrifuge.
8. Elaborate the concept of multiple effect evaporators.
9. Explain the functioning of a fluidized bed drier (FBD).
10. With a neat labeled diagram explain humidity chart with its significance.
11. Derive Fourier's law. Give its application in pharmacy.

III. SHORT ANSWERS (Answer any five questions)**5x2=10 Marks**

12. Write a note on coefficient of performance.
13. List the fundamental factors to be considered for selection of plant location.
14. Enlist the safety measures during fire hazards in pharmaceutical processing.
15. Enumerate the types of corrosion.
16. Write merits and demerits of glass as a construction material.
17. What is Reynolds number? Give its importance.
18. Give the principle involved in pneumatic conveyor.

JSS UNIVERSITY, MYSURU
Third Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmaceutical Biotechnology

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Differentiate active and passive immunity. Write important features of antigen and antibody structure. Explain production of monoclonal antibodies and its applications. (2+5+8)
2. Describe the process of dry heat sterilization and write its applications. Explain sterility testing of large volume parenterals. (10+5)
3. Explain immobilization techniques. Explain the production of streptokinase and write applications of biosensors. (5+10)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain two viable count techniques for bacteria.
5. What is phenol co-efficient test? Explain Rideal–Walker test.
6. Name differential staining technique. Explain principle and procedure of Gram's staining.
7. Explain pasteurization and sterilization by heating with bactericidal agent.
8. Explain production of single cell protein.
9. With examples explain functions of vector, restricted endonucleases and DNA ligase.
10. Write a note on databases used in bioinformatics.
11. Explain maintenance of animal tissue culture.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Principle involved in western blotting technique.
13. Standardization and storage condition of vaccines.
14. What is enriched culture technique?
15. Applications of genetic engineering.
16. Controlling parameters for fermenters.
17. Carbohydrate fermentation test.
18. Morphology of bacteria.

JSS UNIVERSITY, MYSURU

Third Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmaceutical Quality Assurance

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. a) Explain the elements of ISO 9000 series. (7+8)
b) Explain the principles of total quality management (TQM).
2. Write in detail about the personnel responsibilities, training, and hygiene while working in GMP approved pharmaceutical manufacturing plant. (6+6+3)
3. Describe the location, design, plant layout, and construction of a pharmaceutical manufacturing facility involved in sterile and solid dosage forms. (4+4+4+3)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Which points are to be considered for equipment selection used in the pharmaceutical manufacturing?
5. Explain the quality control tests for containers and secondary packing materials.
6. Define standard operating procedure (SOP). Enlist the components of SOP.
7. Write a note on handling of the complaint in pharmaceutical industry.
8. Write the importance of good warehousing practices.
9. Explain about control of animal house.
10. Write the reasons for calibration and validation of analytical equipments.
11. Write a note on organization and functions of USFDA.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Expand: GATT, NABL, GLP and ISO.
13. Six sigma concept.
14. Components of master formula record.
15. Disposal of pharmaceutical waste.
16. Objectives of ICH.
17. Applications of computers in quality control.
18. Responsibilities of validation team.

JSS UNIVERSITY, MYSURU
Third Year B.Pharm (RS1) Examination - May 2016

Subject: Biopharmaceutics & Pharmacokinetics

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe in detail about the concept of bio-availability and its measurements. Add a note on objectives of bio-availability studies. (10+5)
2. Describe pharmacokinetic models. Add a note on importance of pharmacokinetic studies. (10+5)
3. Describe the channels of drug elimination. Add a note on bio-transformation. (10+5)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain the mechanism of drug absorption through GIT.
5. Explain the kinetics of protein binding.
6. Describe the non-renal routes of drug excretion.
7. Explain in-vitro drug dissolution models.
8. Explain physiological pharmacokinetic models.
9. Explain one-compartment open model of extra vascular administration.
10. Describe statistical moment theory.
11. Explain the factors responsible for non-linearity.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Explain renal clearance.
13. pH-partition theory in drug absorption.
14. What is mean by multiple dosage regimens?
15. Explain gastric-emptying in drug absorption.
16. Explain tissues and membrane permeability of drugs.
17. Define and explain the term biopharmaceutics.
18. Define drug absorption and give its significance.

JSS UNIVERSITY, MYSURU
Fourth Year B.Pharm (RS1) Examination - May 2016

Subject: Medicinal Chemistry- II

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. a) Classify NSAIDs with examples. Write the synthesis for ibuprofen and indomethacin. (10+5)
b) Explain the structure activity relationship of morphine.
2. Explain drug design based on traditional analog and quantitative structure activity relationship (QSAR) studies.
3. a) Classify antiviral agents. Write the synthesis and mechanism of action of acyclovir. (5+2.5+2.5+5)
b) Structure activity relationship (SAR) of sulphonamides.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain the mechanism of action of alkylating agents. Write the structure and uses of chlorambucil.
5. Explain the synthesis of diethylcarbamazine and thiabendazole.
6. Explain the synthesis of sulphacetamide and sulphamethoxazole.
7. Write a short essay on history and current status of penicillins.
8. Write a note on oral contraceptives.
9. Describe the synthesis and clinical uses of diphenhydramine hydrochloride and promethazine hydrochloride.
10. Describe the chemistry and clinical uses of eicosanoids.
11. Describe the chemistry of antifungal antibiotics.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Write the structure and use of idoxuridine and fluorouracil.
13. Write the structure activity relationship of tetracyclines.
14. What is pharmacophore?
15. Give four examples of antiprotozoal agents.
16. Draw the structure and medicinal uses of nalorphine HCl.
17. Draw the structure and uses of diethyl stilbesterol.
18. List the second generation non-sedating anti-histamines. Write the structure of any one.

JSS UNIVERSITY, MYSURU
Fourth Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmacology- II

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions) 2x15=30 Marks

1. Classify antitubercular drugs with examples. Describe the pharmacology of any three antitubercular drugs. (5+10)
2. Write the principles, merits and demerits of bioassays in detail. Add a note on the bioassay of oxytocin IP. (5+5+5)
3. Classify oral hypoglycemic agents. Write the pharmacology of sulphonyl ureas in detail. (5+10)

II. SHORT ESSAY (Answer any six questions) 6x5=30 Marks

4. Classify laxatives. Explain the mechanism of action of bulk laxatives.
5. Write the pharmacology of serotonin antagonists.
6. Write the mechanism of action and adverse effects of tetracycline
7. Classify drugs used in the treatment of urinary tract infections and write the mechanism of action of fluoroquinolones.
8. Write the pharmacological actions of angiotensin II.
9. Write the adverse effects of anticancer agents.
10. Classify NSAIDS with examples. Explain the mechanism of action of aspirin.
11. Describe the conventional and newer insulin preparations.

III. SHORT ANSWERS (Answer any five questions) 5x2=10 Marks

12. Write a note on ulcer protectives.
13. What is gout? List the drugs used to treat gout.
14. Write the therapeutic uses of immunostimulants.
15. Write briefly on oral contraceptive drugs.
16. What is chronopharmacology?
17. Write a note on chronic toxicity studies.
18. Classify antiemetic agents.

JSS UNIVERSITY, MYSURU
Fourth Year B.Pharm (RS1) Examination - May 2016
Subject: Formulative and Industrial Pharmacy

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe the need for tablet coating. Explain different stages involved in the process of sugar coating. (5+10)
2. Describe the formulation additives used for the manufacture of sterile solutions. Mention the merits and demerits of parenteral products. (9+6)
3. Write a note on the need for microencapsulation. Explain the methods used for the preparation of microcapsules.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Explain the principle of drug release by osmotic regulated delivery systems.
5. Explain the pilot plant scale-up and manufacturing techniques for ointment preparations.
6. Describe five defects of uncoated tablets.
7. With a neat labeled diagram, explain the process of tablet compression using a single rotary tablet machine.
8. Write a note on manufacture of soft gelatin capsules.
9. Describe the importance of isotonicity for injectable preparations.
10. Formulation of lipsticks.
11. Write a note on ICH guidelines for stability studies.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Why are chlorinated hydrocarbon propellants not used for topical aerosols?
13. Leak tests for parenterals.
14. Mention the types of glass used for pharmaceutical products.
15. What are abrasives? Give examples.
16. Define minim per gram factor.
17. Spray pattern tests for aerosols.
18. Write a note on occuserts.

JSS UNIVERSITY, MYSURU

Fourth Year B.Pharm (RS1) Examination - May 2016

Subject: Instrumental Methods of Analysis

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Explain the instrumentation of nuclear magnetic resonance (NMR) spectroscopy and add a note on chemical shift. (10+5)
2. Explain the factors affecting fluorescence and phosphoresces.
3. Describe the instrumentation of HPLC and add a note on application of HPTLC. (10+5)

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Describe the filters and monochromators in UV spectrophotometers
5. Explain the McLafferty rearrangement.
6. Write the application of atomic absorption spectroscopy.
7. Explain the working of conductivity cell.
8. Describe the application of differential scanning calorimetry (DSC).
9. Explain the calibration of UV spectrophotometer.
10. Explain the principle of thin layer chromatograph (TLC).
11. Explain the instrumental methods to determine end point of titrations.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. Define auxochrome.
13. What are the limitations of flame photometry?
14. Enumerate the factors affecting fluorescence.
15. Applications of X-ray diffraction studies.
16. List the advantage of gas chromatography.
17. Define ion exchange resins.
18. Write the classification of electrophoresis.

JSS UNIVERSITY, MYSURU
Fourth Year B.Pharm (RS1) Examination - May 2016
Subject: Pharmacy Practice

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions) 2x15=30 Marks

1. Define and classify hospitals. Explain the organisational structure and functions of a hospital. (5+10)
2. Explain the pathophysiology and pharmacotherapy of hypertension.
3. Explain the role and activities of clinical pharmacist.

II. SHORT ESSAY (Answer any six questions) 6x5=30 Marks

4. Write a note on medication adherence.
5. Explain the pharmacotherapy of peptic ulcer.
6. Explain the role of pharmacist in the management of adverse drug reactions (ADR).
7. Briefly explain ABC and VED analysis in inventory control.
8. Describe the organisational structure and functions pharmacy and therapeutic committee (PTC).
9. Briefly describe pharmacotherapy for epilepsy.
10. Write a note on budget preparation and implementation.
11. Explain the phases of clinical trials.

III. SHORT ANSWERS (Answer any five questions) 5x2=10 Marks

12. Complications of diabetes mellitus.
13. Difference between hypertensive emergency and urgency.
14. Counseling a patient who is receiving anti-TB drugs.
15. Sources of medication error.
16. Explain the need for therapeutic drug monitoring (TDM).
17. Write a note on hospital formulary.
18. Give four examples for OTC drugs.

JSS UNIVERSITY, MYSURU

Fourth Year B.Pharm (RS1) Examination - May 2016

Subject: Pharmaceutical Marketing and Management

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

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)

2x15=30 Marks

1. Describe in detail about primary functions of management.
2. Write in detail about demographic descriptions and socio-psychological characteristics of the consumer.
3. Describe in detail about types of promotion.

II. SHORT ESSAY (Answer any six questions)

6x5=30 Marks

4. Describe the modification of existing product.
5. Explain the concept of brand.
6. Describe the effects of government regulations and controls on marketing practices.
7. Classification of retail institutions.
8. Describe the role of market research in analyzing the market.
9. List and describe the duties of professional sales representatives (PSR).
10. Explain the elements in a product life cycle (PLC).
11. Explain delegation of authority and responsibility.

III. SHORT ANSWERS (Answer any five questions)

5x2=10 Marks

12. What is departmentalization?
13. What is a rate contract?
14. What are patent and trademark?
15. What is non-price competition?
16. Advantages of rate contract.
17. What is DMAIC?
18. Importance of public relations in marketing.

JSS UNIVERSITY, MYSURU
First Semester - B Pharm (SS) - Examination May 2016

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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A

Note:

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 The structures that are composed of two or more different types of tissues and have specific functions and having a recognizable shape are known as:
 - a) Tissue
 - b) Organ
 - c) System
 - d) Viscera
- 2 Ascending and descending colons are:
 - a) Ipsilateral
 - b) Contralateral
 - c) Distal
 - d) Proximal
- 3 The hereditary unit of a cell is called:
 - a) Chromosomes
 - b) Gene
 - c) Polysomes
 - d) Ribosomes
- 4 The molecular signature of a cell is called:
 - a) Glycolipid
 - b) Glycocalyx
 - c) Glycoprotein
 - d) Cholesterol

- 5 The factor which DOES NOT affect the rate of diffusion is:
- a) Temperature
 - b) Surface area
 - c) Diffusion distance
 - d) Mass
- 6 Which of the following is the function of lysosomes?
- a) Digest substances that enter a cell
 - b) Carry out autophagy
 - c) Implement autolysis
 - d) Synthesize protein
- 7 The number of genes contained in mitochondrial DNA are:
- a) 23
 - b) 37
 - c) 38
 - d) 39
- 8 Which one of the following directs the synthesis of protein in eukaryotic cell?
- a) mRNA
 - b) rRNA
 - c) tRNA
 - d) snRNA
- 9 Somatic cell which is having flagellum:
- a) Epithelial cell
 - b) Nerve cell
 - c) Sperm cell
 - d) Retina
- 10 Thick filament of the skeletal muscle fiber:
- a) Actin
 - b) Myosin
 - c) Troponin
 - d) Titin
- 11 Grey matter is composed of _____ and white matter is composed of _____
- a) Cell bodies, myelinated axons
 - b) Interneurons, synapses
 - c) Non-myelinated axons, cell bodies
 - d) Sensory neurons, motor neurons

- 12 The most important hormone that regulates the calcium exchange in human body:
- a) Thyroid hormone
 - b) Melatonin
 - c) Parathyroid hormone
 - d) Epinephrine
- 13 Sudoriferous gland secretes:
- a) Oil
 - b) Sweat
 - c) Wax
 - d) Saliva
- 14 The type of muscle that lack striations is called as:
- a) Skeletal muscle
 - b) Smooth muscle
 - c) Cardiac muscle
 - d) Pennate muscle
- 15 One among the facial bones is:
- a) Temporal
 - b) Frontal
 - c) Parietal
 - d) Palate
- 16 Which among the following is not a neurotransmitter?
- a) Acetylcholine
 - b) Insulin
 - c) GABA
 - d) Glycine
- 17 Emotional responses to odour is associated with:
- a) Reticular nuclei
 - b) Habenular nuclei
 - c) Preoptic
 - d) Midline nuclei
- 18 Central nervous system consists of:
- a) Brain and somatic nervous system
 - b) Brain and autonomic nervous system
 - c) Brain only
 - d) Brain and spinal cord

- 19 In which of the cell organelles, steroids & fatty acids are synthesized?
- a) Ribosomes
 - b) Rough endoplasmic reticulum
 - c) Smooth endoplasmic reticulum
 - d) Golgi complex
- 20 Glucocorticoids are having the following functions EXCEPT:
- a) Glucose formation
 - b) Lipolysis
 - c) Depression of immune response
 - d) Increase the bone density

Section B

ESSAY (Answer any two questions)

2x10= 20 Marks

- 1 Explain the anatomy of eye ball with a neat diagram and describe three steps in image formation. (4+6)
- 2 Classify epithelial tissues. Write in detail about glandular epithelium. (3+7)
- 3 Write the classification of joints, and explain in detail about the synovial joints. (4+6)

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

- 4 Explain any four functions of muscular tissues.
- 5 Write in detail about the internal anatomy of spinal cord with a neat diagram.
- 6 Describe the structure and functions of cerebellum.
- 7 Explain about the cholinergic neurons and its receptors.
- 8 Explain the structure and functions of skin.
- 9 Explain the histology of adrenal cortex. Enumerate the events of renin-angiotensin-aldosterone (RAA pathway).
- 10 Write a note on active transport mechanisms.
- 11 Explain the endocrine hormones of pancreas and its functions.
- 12 Explain the parts of eukaryotic cell with a neat and labeled diagram.

JSS UNIVERSITY, MYSURU

First Semester - B. Pharm (SS) - Examination May 2016

Subject: Pharmaceutical Analysis- 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

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

35 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Standardization of oxalic acid is carried out using:
 - a) Potassium hydrogen phthalate
 - b) Sodium phthalate
 - c) Potassium chlorate
 - d) Ammonium chloride
- 2 The term accuracy is _____ to original value:
 - a) Intraday repeatable
 - b) Interday repeatable
 - c) Inter and intraday repeatable
 - d) Nearest value
- 3 In burette reading of 10.06mL:
 - a) One zero is insignificant figure
 - b) Two zeros are insignificant figure
 - c) One zero is significant figure
 - d) Two zeros are significant figure
- 4 A molar solution is number of _____ per 1000mL:
 - a) Milligram
 - b) Gram
 - c) Kilogram
 - d) Moles

- 5 The following solvent can be used in non-aqueous titration EXCEPT:
- a) Toluene
 - b) Benzene
 - c) Acetic acid
 - d) Hydrochloric acid
- 6 Methyl orange used in ephedrine hydrochloride assay is prepared in:
- a) Water
 - b) Acetone
 - c) Perchloric acid
 - d) Methanol
- 7 The following is an example of weakly basic substance:
- a) KOH
 - b) NaOH
 - c) KCl
 - d) Sodium benzoate
- 8 Phenolphthalein changes to pink color due to:
- a) Acidic pH
 - b) Basic pH
 - c) Neutral pH
 - d) Solubility nature
- 9 Sodium chloride IV infusion is assayed by:
- a) Alkalimetry
 - b) Precipitation titration
 - c) Redox titration
 - d) Oxidation
- 10 Generally ammonium thiocyanate is standardized by:
- a) Potassium iodide
 - b) Potassium iodate
 - c) Iodine
 - d) Silver nitrate
- 11 Werner's co-ordination number is dependent on:
- a) Small groups present
 - b) All atoms present
 - c) Valency
 - d) Steric factors

- 12 Dimercaprol is a _____ agent in complexometry:
- Masking agent
 - Demasking agent
 - Primary titrant
 - Secondary titrant
- 13 The following is NOT used in oxidation-reduction titration:
- Self indicator
 - External indicator
 - Internal indicator
 - Universal indicator
- 14 Reducing substances generally:
- Accept proton
 - Accept neutron
 - Liberate proton
 - Liberate neutron
- 15 Name of indicator used in bromatometry is:
- Methylen blue
 - Gallamine blue
 - Crystal violet
 - Universal
- 16 The following is a standard in dichrometry:
- Chromic acid
 - Potassium dichromate
 - Diphenylamine
 - Sulphonic acid
- 17 Conductivity is a measure of:
- Voltage
 - Resistivity
 - Property of ion
 - Solubility of ion
- 18 Second derivative potentiometric end point detection is a plot of volume versus:
- $\Delta E / \Delta V$
 - $\Delta \text{pH} / \Delta V$
 - $\Delta V / \Delta E^2$
 - $\Delta E^2 / \Delta V^2$

- 19 In Ilkovic equation D represents:
- Diameter
 - Diffusion
 - Dimension
 - Diffusion coefficient
- 20 The salt bridge of glass electrode used in non-aqueous titration is prepared in:
- Methanol
 - Hexane
 - Chloroform
 - Toluene

Section B

ESSAY (Answer any two questions)

2x10=20 Marks

1. Explain determinate errors and methods to eliminate it.
2. Explain the principle, types of solvents and end point detection in non-aqueous titration. (4+3+3)
3. Describe Mohr's method of titration with two examples (5+5)

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

4. Write a note on significant figures.
5. Explain acid base indicators.
6. Describe principles of gravimetry.
7. Write the concepts of oxidation reduction process.
8. How is iodine prepared and standardized?
9. Explain assay of ferrus sulphate.
10. Explain the working of dropping mercuric electrode with a diagram.
11. What are the applications of potentiometry?
12. Write a note on conductometric titration.

JSS UNIVERSITY, MYSURU**First Semester - B. Pharm (SS) - Examination May 2016****Subject: 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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Posology is the science of:
 - a) Dosage form
 - b) Dose
 - c) Drug action
 - d) Administration of drugs.
- 2 Alkaloidal salts with salicylates is the example for:
 - a) Physical incompatibility
 - b) Therapeutic incompatibility
 - c) Chemical incompatibility
 - d) Delayed incompatibility
- 3 The first edition of British pharmacopoeia was published in year:
 - a) 1866
 - b) 1864
 - c) 1856
 - d) 1800
- 4 In non-flocculated suspension, the particles exist as _____ entities:
 - a) Complex
 - b) Compound
 - c) Separate
 - d) Multiple

- 5 When the action and duration of action of one drug is diminished by other drug is called as:
- a) Idiosyncrasy
 - b) Antagonism
 - c) Synergism
 - d) Habituation
- 6 Which of the following is required to be isotonic?
- a) Linctus
 - b) Throat paint
 - c) Nasal drops
 - d) Gargle
- 7 Which of the following is for vaginal application?
- a) Liniment
 - b) Pessary
 - c) Cones
 - d) Bougies
- 8 Cachets are also known as _____ capsules:
- a) Hardened
 - b) Water
 - c) Soft
 - d) Solgel
- 9 The first Indian pharmacopoeia was published in:
- a) 1966
 - b) 1955
 - c) 1945
 - d) 1856
- 10 A formulation that should be applied with friction:
- a) Lotion
 - b) Ointment
 - c) Paste
 - d) Liniment
- 11 A gallon is _____ fluid ounces:
- a) 160
 - b) 170
 - c) 180
 - d) 190

- 12 The most suitable vehicle for throat paints:
- a) Glycerin
 - b) Water
 - c) Alcohol
 - d) Poly ethylene glycol
- 13 Saccharine is _____ times sweeter than sucrose:
- a) 2
 - b) 10
 - c) 100
 - d) 500
- 14 Ointment prepared by chemical reaction method:
- a) Whitefield ointment
 - b) Compound methyl salicylate ointment
 - c) Sulphur ointment
 - d) Non-staining iodine ointment
- 15 Theobroma oil is the example for:
- a) Aqueous bases
 - b) Synthetic fat bases
 - c) Oleaginous bases
 - d) Emulsifying bases
- 16 Example of eutectic mixtures:
- a) Menthol and kaolin
 - b) Calcium carbonate and camphor
 - c) Camphor and menthol
 - d) Camphor and kaolin
- 17 Meaning of recipe:
- a) Take thou
 - b) Take it
 - c) Take you
 - d) Through it
- 18 Directions of the prescriber to the pharmacist regarding the type and compounding of dosage form along with number of doses is called:
- a) Superscription
 - b) Inscription
 - c) Subscription
 - d) Signatura

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 - Water
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- Superscription
 - Inscription
 - Subscription
 - Signatura

- 19 Otic dosage form is administered through:
- a) Ears
 - b) Nose
 - c) Eyes
 - d) Mouth
- 20 One fluid ounce is approximately equal to:
- a) 5 ml
 - b) 15 ml
 - c) 10 ml
 - d) 30 ml

Section B

ESSAY (Answer any two questions)

2x10= 20 Marks

1. Define posology. Explain the factors which influence dose of the drug. (2+8)
2. Define suppository. Explain the preparation of suppositories by compression method with diagram.
3. Define incompatibilities. Write the classification and methods to overcome the physical incompatibilities with suitable examples.

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

4. Write briefly about the handling of prescriptions.
5. Write a note on development of profession of pharmacy.
6. Describe simple syrup. IP.
7. Write a note on isotonic solutions.
8. Explain the evaluation of a suspension.
9. Write a note on eutectic mixtures with suitable examples.
10. Write a note on elixir. Give an example
11. Write a note on effervescent powders.
12. Describe the instability of emulsions.

JSS UNIVERSITY, MYSURU

First Semester - B. Pharm (SS) - Examination May 2016

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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Thioglycolic acid is added in the limit test for iron:
 - a) To make the solution acidic
 - b) To dissolve the impurities
 - c) To reduce the ferric ions to ferrous ions
 - d) To convert the ferrous ions to ferric ions
- 2 Which of the following impurity may cause decrease in production of RBCs and WBCs?
 - a) Chlorides
 - b) Sulphates
 - c) Iron
 - d) Arsenic
- 3 The limit test for chlorides in sodium bicarbonate sample is carried out by:
 - a) Adding concentrated nitric acid
 - b) Adding concentrated hydrochloric acid
 - c) Adding glacial acetic acid
 - d) Adding concentrated sulphuric acid
- 4 There is a small aperture in the end of the long tube of arsenic limit apparatus:
 - a) To remove the water vapors formed
 - b) To remove the arsine gas which is formed in the apparatus
 - c) To remove the impurities present
 - d) To remove undissolved gases

- 5 The normal blood plasma concentration of potassium ions is:
- a) 3.5-5 mEq/litre
 - b) 5.5-6.5 mEq/litre
 - c) 130-140 mEq/litre
 - d) 135-145 mEq/litre
- 6 In the CNS, the inhibitory action of glycine and GABA depends on the entry of one of the following ions:
- a) Calcium ions
 - b) Chloride ions
 - c) Potassium ions
 - d) Sodium ions
- 7 Which of the following is the major extracellular cation?
- a) Sodium
 - b) Calcium
 - c) Potassium
 - d) Magnesium
- 8 Which of the following is called as desensitizing agent in dental products?
- a) Zinc oxide
 - b) Calcium carbonate
 - c) Strontium chloride
 - d) Sodium fluoride
- 9 Which of the following compounds is used in the treatment of achlorhydria?
- a) Dilute nitric acid
 - b) Dilute hydrochloric acid
 - c) Dilute sulphuric acid
 - d) Dilute acetic acid
- 10 Which of the following is a combination of antacids?
- a) Digene
 - b) Gelusil
 - c) Aludrox
 - d) Gelusil MPS
- 11 Magnesium sulphate can be used as:
- a) Cathartic
 - b) Anti-microbial
 - c) Emetic
 - d) Astringent

- 12 Chlorinated lime can be assayed by:
- a) Acid base titration method
 - b) Complexometric titration method
 - c) Iodometric titration method
 - d) Precipitation titration method
- 13 Ammonium chloride can be assayed by:
- a) Formal titration method
 - b) Redox titration method
 - c) Complexometric titration method
 - d) Gravimetry method
- 14 Potassium iodide can be used as:
- a) Emetic
 - b) Expectorant
 - c) Antidote
 - d) Astringent
- 15 Compound used in the treatment of cyanide poisoning:
- a) Sodium thiosulphate
 - b) Copper sulphate
 - c) Sodium potassium tartarate
 - d) Activated charcoal
- 16 Zinc sulphate can be used as:
- a) Astringent
 - b) Emetic
 - c) Antidote
 - d) Cathartic
- 17 Which of the following is used as unit to measure radioactivity:
- a) Curie
 - b) Lbs
 - c) Psi
 - d) Cusecs
- 18 Sodium iodide (^{131}I) isotope is used in the treatment of:
- a) Thyroid disorders
 - b) Cancers involving skin
 - c) Cancers involving stomach and intestine
 - d) Brain disorders

19 Which of the following rays have more penetrating power?

- a) The alpha rays
- b) The beta rays
- c) The gamma rays
- d) Microwaves

20 Sodium iodohippurate I-131 injection is used in the diagnosis of:

- a) Renal functions
- b) Liver functions
- c) Heart functions
- d) Intestinal cancers

Section B

ESSAY (Answer any two questions)

2 x 10= 20 Marks

1. Explain the principle along with reactions involved in the limit test for (5+5)
 - a) Iron
 - b) Heavy metals
2. List the standard buffers used in pharmaceutical preparations. What are the methods available to adjust isotonicity? (5+5)
3. Classify inorganic antimicrobial agents based on their mechanism of action. (4+6)
Explain the principle involved in the assay of chlorinated lime.

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

4. Explain the limit test for sulphates in potassium permanganate sample. Write the composition of barium sulphate reagent in this limit test.
5. Give the blood plasma normal levels and physiological roles of the following ions:
 - a) Sodium
 - b) Calcium
6. What are non-systemic antacids? Give examples. What is the reason for adding simethicone in antacid formulation? (3+2)
7. Describe the preparation, principle involved in the assay and therapeutic use of ammonium chloride. (1+3+1)
8. Explain the preparation, principle involved in the assay and use of sodium thiosulphate.
9. Define haematinic. Give the preparation and principle involved in the assay of one haematinic.
10. Write a note on hazards and precautions to be taken during the handling of radiopharmaceuticals.
11. Give therapeutic applications of radiopharmaceuticals.
12. Write a note on measurement of radioactivity.

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Section B

ESSAY (Answer any two questions)

2 x 10= 20 Marks

- Explain the principle along with reactions involved in the limit test for (5+5)
 - Iron
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- List the standard buffers used in pharmaceutical preparations. What are the methods available to adjust isotonicity? (5+5)
- Classify inorganic antimicrobial agents based on their mechanism of action. Explain the principle involved in the assay of chlorinated lime. (4+6)

Section C

SHORT NOTES (Answer any seven questions)

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- Explain the limit test for sulphates in potassium permanganate sample. Write the composition of barium sulphate reagent in this limit test.
- Give the blood plasma normal levels and physiological roles of the following ions:
 - Sodium
 - Calcium
- What are non-systemic antacids? Give examples. What is the reason for adding simethicone in antacid formulation? (3+2)
- Describe the preparation, principle involved in the assay and therapeutic use of ammonium chloride. (1+3+1)
- Explain the preparation, principle involved in the assay and use of sodium thiosulphate.
- Define haematinic. Give the preparation and principle involved in the assay of one haematinic.
- Write a note on hazards and precautions to be taken during the handling of radiopharmaceuticals.
- Give therapeutic applications of radiopharmaceuticals.
- Write a note on measurement of radioactivity.

JSS UNIVERSITY, MYSURU
Second Semester - B Pharm (SS) - Examination May 2016

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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A

Note:

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which of the following white blood cells is capable of phagocytosis?
 - a) Basophil
 - b) Eosinophil
 - c) Lymphocyte
 - d) Neutrophil
- 2 The formation of a blood clot is known as:
 - a) Coagulation
 - b) Chemotaxis
 - c) Leucopoiesis
 - d) Erythropoiesis
- 3 An increased white blood cell count is indicative of which disease?
 - a) Lupus
 - b) Leukaemia
 - c) Anaemia
 - d) Melanoma
- 4 Branches of lymph capillaries inside villi of intestine are termed as:
 - a) Lymph nodes
 - b) Lymph duct
 - c) Thoracic lymph duct
 - d) Lacteals

- 5 The lining of the inner walls of the heart's chambers is termed the:
- a) Epicardium
 - b) Myocardium
 - c) Endocardium
 - d) Pericardium
- 6 If the heart's SA node fails to fire, then:
- a) No blood would enter the atria
 - b) No blood would enter the ventricles
 - c) AV node will act as a secondary pacemaker
 - d) Bundle of His will act as a secondary pacemaker
- 7 The exchange of gases and nutrients between blood and tissues is a major function of:
- a) Arterioles
 - b) Arteries
 - c) Capillaries
 - d) Veins
- 8 Blood returning to the heart from the inferior vena cava would enter the:
- a) Left atrium
 - b) Right atrium
 - c) Left ventricles
 - d) Right ventricles
- 9 Aggregates of lymphoid tissue present in the distal portion of the small intestine are known as:
- a) Villi
 - b) Peyer's patches
 - c) Rugae
 - d) Choroid plexus
- 10 Which artery supplies the stomach with oxygenated blood?
- a) Carotid artery
 - b) Gastric artery
 - c) Celiac artery
 - d) Cephalic artery
- 11 Name the hormone that stimulates the secretion of gastric juice:
- a) Renin
 - b) Enterokinase
 - c) Enterogastrone
 - d) Gastrin

- 12 The lowermost portion of the pharynx is the:
- a) Oropharynx
 - b) Nasopharynx
 - c) Laryngopharynx
 - d) Pharyngeal tonsils
- 13 The exchange of gases between inhaled air and blood is referred as:
- a) Cellular respiration
 - b) External respiration
 - c) Internal respiration
 - d) Circulatory respiration
- 14 What is the average glomerular filtration rate?
- a) 1 ml per minute
 - b) 1500 ml per day
 - c) 10 L per day
 - d) 180 L per day
- 15 Most of the tubular reabsorption occurs at the:
- a) Loop of henle
 - b) Distal convoluted tubule
 - c) Proximal convoluted tubule
 - d) Glomerulus
- 16 The renal corpuscle is comprised of a glomerulus and _____
- a) Proximal convoluted tubule
 - b) Bowman's capsule
 - c) Loop of Henle
 - d) Distal convoluted tubule
- 17 In meiosis, recombination occurs in:
- a) Metaphase I
 - b) Prophase I
 - c) Metaphase II
 - d) Prophase II
- 18 The cells of testes which secrete male reproductive hormones are:
- a) Seminiferous tubules
 - b) Sustentacular cells
 - c) Interstitial cells
 - d) Efferent ductile

- 19 Approximately how long does it take for a spermatocyte to complete its differentiation into a spermatozoan in the testis?
- a) 7 months
 - b) 70 days
 - c) 7 days
 - d) 70 hours
- 20 The female gonads are called as:
- a) Oocytes
 - b) Ova
 - c) Oviducts
 - d) Ovaries

Section B

ESSAY (Answer any two questions)

2x10= 20 Marks

- 1 Define blood group. Explain in detail the ABO system of blood grouping. Add a note on blood transfusion and its significance. (2+4+4)
- 2 Define blood pressure. Explain in detail the hormonal regulation of blood pressure. (2+8)
- 3 Explain in detail the mechanics and mechanism of respiration.

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

- 4 Functions of lymphatic system.
- 5 Structure and functions of artery.
- 6 Digestion and absorption of fats.
- 7 Artificial respiration.
- 8 Acid base balance.
- 9 Factors affecting glomerular filtration.
- 10 Menstrual cycle.
- 11 Role of testosterone.
- 12 Genetic pattern of inheritance.

JSS UNIVERSITY, MYSURU

Second Semester - B. Pharm (SS) - Examination May 2016

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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which of the following statements regarding the E2 mechanism is wrong?
 - a) Reactions are unimolecular in the rate-determining step
 - b) Reactions are generally first order
 - c) Reaction mechanism usually occur in one step
 - d) Reactions are multi-step reactions
- 2 Diel's alder reaction is:
 - a) [2+2]-cyclo addition reaction
 - b) [4+1]-cyclo addition reaction
 - c) [4+2]-cyclo addition reaction
 - d) [2+6]-cyclo addition reaction
- 3 What is anti-Markovnikov addition?
 - a) Hydrogen bromide is added to unsymmetrical alkenes in the presence of peroxide
 - b) Hydrogen bromide is added to symmetrical alkenes in the presence of peroxide
 - c) Hydrogen bromide is added to unsymmetrical alkanes in the presence of peroxide
 - d) Hydrogen bromide is added to unsymmetrical alkynes in the presence of peroxide
- 4 Ozonolysis is:
 - a) Carbon-nitrogen single bonds cleaved with ozone
 - b) Carbon-carbon double bonds cleaved with ozone
 - c) Carbon- oxygen double bonds cleaved with ozone
 - d) Carbon- sulfur double bonds cleaved with ozone

- 5 Which of the following alkyl halides is most likely to undergo rearrangement in SN1 reaction?
- 3-bromopentane
 - 2-chloro-3,3-dimethylpentane
 - 3-chloropentane
 - Bromocyclohexane
- 6 Leaving group in nucleophilic substitution reaction is:
- Highly basic
 - Weakly basic
 - Weakly acidic
 - Highly acidic
- 7 The number of molecules taking part in the rate determining step is called:
- Order of reaction
 - Rate of reaction
 - Mole of reaction
 - Extent of reaction
- 8 Which among the following is not a good leaving group?
- HSO_4^-
 - Cl^-
 - OH^-
 - Br^-
- 9 Aldol condensation is:
- Nucleophilic addition to alkene compounds
 - Nucleophilic addition to alkyne compounds
 - Nucleophilic addition to carbonyl compounds
 - Nucleophilic addition to alkane compounds
- 10 Aldehydes containing no alpha hydrogen undergo _____ reaction:
- Aldol condensation
 - Cannizzaro reaction
 - Diels-Alder reaction
 - Perkin condensation
- 11 Cannizzaro reaction is not given by:
- Trimethyl acetaldehyde
 - Formaldehyde
 - Benzaldehyde
 - Acetaldehyde

- 12 Sodium acetate catalysed condensation of aromatic aldehyde and aliphatic acid anhydride to form an β -unsaturated aromatic acid is called:
- Baeyer-Villiger oxidation
 - Benzoin condensation
 - Claisen rearrangement
 - Perkin condensation
- 13 A strong base can abstract an α -hydrogen from:
- Amine
 - Alkane
 - Alkene
 - Ketone
- 14 Aspirin is known as:
- Acetyl salicylic acid
 - Benzoyl salicylic acid
 - Acetyl chlorobenzoic acid
 - Anthranilic acid
- 15 Positive inductive effect is shown by:
- NO_2
 - Cl
 - Br
 - CH_3
- 16 Negative inductive effect is shown by:
- CH_3
 - H
 - Cl
 - C_2H_5
- 17 IUPAC name of acetone is:
- Propanone
 - Propanal
 - Propanol
 - Propene
- 18 IUPAC name of acetic acid is:
- Propanoic acid
 - Butanoic acid
 - Ethanoic acid
 - Pentanoic acid

- 19 The IUPAC name of benzaldehyde is:
- Benzenecarbaldehyde phenylmethanol
 - Benzenecarbaldehyde phenylmethanal
 - Benzenecarbaldehyde phenylethnal
 - Benzenecarbaldehyde phenylethylmethanal
- 20 Consider the molecular formula C_7H_7Cl . How many different isomers you could make depending on the position of the chlorine atom?
- 2
 - 3
 - 4
 - 5

Section B

ESSAY (Answer any two questions)

2 x 10= 20 Marks

- Describe the mechanism of E1 and E2 reactions. Explain Saytzeff's orientation. (6+4)
- Explain the stereochemistry of SN1 and SN1 reaction and add a note on rearrangements of carbocation. (6+4)
- Write pharmaceutical applications and the mechanisms of Perkin and benzoin condensation.

Section C

SHORT NOTES (Answer any seven questions)

7x5= 35 Marks

- Write the structure and uses of tetrachloroethylene, dichloromethane, iodoform, ethyl chloride and chloroform.
- Explain structural isomerism with suitable examples.
- Write the qualitative tests for esters.
- Write a note on crossed aldol condensation.
- Describe ozonolysis with suitable examples.
- What is inductive effect? Write two uses each of benzoic acid, benzyl benzoate and amphetamine.
- Write the qualitative tests and uses of ethanolamine.
- Mention the general IUPAC rules for naming of alkenes.
- Write a note on acidity of carboxylic acids. Give structures of succinic acid, tartaric acid and lactic acid.

JSS UNIVERSITY, MYSURU

Second Semester - B. Pharm (SS) - Examination May 2016

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	20 Marks
Section B: Long Essay	20 Marks
Section C: Short Essay	35 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLACK BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes, submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 A holoenzyme is:
 - a) Functional unit
 - b) Apo-enzyme
 - c) Coenzyme
 - d) All of these
- 2 Coenzymes are:
 - a) Heat stable, dialyzable, non protein organic molecules
 - b) Soluble, colloidal, protein molecules
 - c) Structural analogue of enzymes
 - d) Different forms of enzymes
- 3 The kinetic effect of purely competitive inhibitor of an enzymes:
 - a) Increases K_m without affecting V_{max}
 - b) Decreases K_m without affecting V_{max}
 - c) Increases V_{max} without affecting K_m
 - d) Decreases V_{max} without affecting K_m
- 4 In reversible non-competitive enzyme activity inhibition:
 - a) Inhibitor bears structural resemblance to substrate
 - b) Inhibitor lowers the maximum velocity
 - c) K_m is increased
 - d) K_m is decreased

- 5 RNA does not contain:
- a) Uracil
 - b) Adenine
 - c) Thymine
 - d) Ribose
- 6 The sugar moiety present in RNA is:
- a) Ribulose
 - b) Arabinose
 - c) Ribose
 - d) Deoxyribose
- 7 Double helical structure model of the DNA was proposed by:
- a) Pauling and Corey
 - b) Peter Mitchell
 - c) Watson and Crick
 - d) King and Wooten
- 8 Translation results in a product known as:
- a) Protein
 - b) tRNA
 - c) mRNA
 - d) rRNA
- 9 Ketone bodies are synthesized in:
- a) Adipose tissue
 - b) Liver
 - c) Muscles
 - d) Brain
- 10 Oxidation of fatty acids occurs:
- a) In the cytosol
 - b) In the matrix of mitochondria
 - c) On inner mitochondrial membrane
 - d) On the microsomes
- 11 In β -Oxidation of fatty acids, which of the following are utilized as coenzymes?
- a) NAD⁺ and NADP⁺
 - b) FADH₂ and NADH + H⁺
 - c) FAD and FMN
 - d) FAD and NAD⁺

- 12 De novo synthesis of fatty acids occurs in:
- a) Cytosol
 - b) Mitochondria
 - c) Microsomes
 - d) Golgi apparatus
- 13 The following is an enzyme required for glycolysis:
- a) Pyruvate kinase
 - b) Pyruvate carboxylase
 - c) Glucose-6-phosphatase
 - d) Glycerokinase
- 14 Our body can get pentoses from:
- a) Glycolytic pathway
 - b) Uronic acid pathway
 - c) TCA cycle
 - d) HMP shunt
- 15 The enzyme required for the hexose monophosphate shunt pathway is:
- a) Glucose-6-phosphatase
 - b) Phosphorylase
 - c) Aldolase
 - d) Glucose-6-phosphate dehydrogenase
- 16 The formation of citrate from oxalo-acetate and acetyl CoA is:
- a) Oxidation
 - b) Reduction
 - c) Condensation
 - d) Hydrolysis
- 17 The phenomenon of osmosis is opposite to that of:
- a) Diffusion
 - b) Effusion
 - c) Affusion
 - d) Coagulation
- 18 Which one is the heaviest particulate component of the cell?
- a) Nucleus
 - b) Mitochondria
 - c) Cytoplasm
 - d) Golgi apparatus









