

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-1)

Subject Code : BP-103T

M.Code : 74646

Date of Examination: 16-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) Who is regarded as the Father of Indian Pharmacy?
- b) Mention the formula for calculating dose for a child on the basis of age.
- c) What are efflorescent drugs? Give two examples.
- d) What is meant by isotonic solution?
- e) What are preservatives? Give two examples of preservatives.
- f) What is a gargle? Mention the ingredients of a gargle.
- g) What is meant by displacement value with respect to suppositories?
- h) Define a suspension and give examples of suspending agents.
- i) What is meant by adjusted incompatibility?
- j) What are creams?

SECTION-B

2. How many grams of a drug substance are required to make 120 ml of a 20% w/w solution having specific gravity of 1.15?
3. What are suppositories? Mention the types of drugs that can be advantageously administered through suppositories. Give a brief account of bases used for making suppositories.
4. Differentiate between a flocculated and deflocculated suspension. Highlight the parameters evaluated for determining the stability of a suspension.

SECTION-C

5. How many ml of 50% w/v dextrose and how many ml of 5% w/v dextrose solution are required to prepare 4.5 litres of a 10% w/v solution?
6. What are deliquescent materials? Give examples and describe the method of dispensing them in powder form.
7. Explain the steps involved during handling of prescriptions.
8. What are different liquid dosage forms? Mention the advantages and limitation of liquid dosage forms.
9. Define liniments. Mention the ingredients of liniments and their uses.
10. Briefly explain the tests employed for identifying type of emulsions.
11. Write briefly about stability testing of emulsions.
12. Classify chemical incompatibilities with examples.
13. Discuss bases with examples for pessaries.

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**B.Pharma (Sem.-1)
HUMAN ANATOMY AND PHYSIOLOGY-I**

Subject Code : BP-101T

M.Code : 74644

Date of Examination: 18-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) Define anatomy.
- b) What do you know about levels of organization?
- c) Define tissue.
- d) Define homeostasis.
- e) Enlist types of tissue.
- f) Define morphology.
- g) Draw a structure of skin.
- h) Define Rh factor.
- i) What is electrocardiogram?
- j) Define sympathetic nervous system.

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SECTION-B

2. Explain the cellular level of organization. Write a note on general principles of cell communication.
3. Elaborate regulation of blood pressure and disorders of heart.
4. Define and classify peripheral nervous system. What are the origin and functions of spinal and cranial nerves?

SECTION-C

5. Explain and draw the anatomy of heart.
6. Explain lymphatic organs and tissues.
7. Define mechanisms of coagulation.
8. Define physiology of muscle contraction.
9. What are different types of joint movements?
10. Explain in detail endocrine level of organization.
11. Elaborate the structure and functions of ear.
12. Define cardiac output and elements of conduction system of heart.
13. Discuss structure and functions of tongue.

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Total No. of Questions : 13

B.Pharma (Sem.-1)
PHARMACEUTICAL ANALYSIS-I

Subject Code : BP-102T

M.Code : 74645

Date of Examination: 20-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. **Explain briefly :**

- Difference Between iodometry and iodimetry.
- Define post precipitation.
- Define buffer with example.
- Write down the examples of indicators used in redox titration.
- Define error with examples.
- What is Gravimetric factor?
- Difference between end point and equivalent point in volumetric titration.
- Difference between specific and equivalent conductance.
- Give example of working electrode used in polarography.
- Define oxidation with examples.

SECTION-B

2. Explain in detail the theories of indicator action. How do you select an appropriate indicator for a titration?
3. What is gravimetric analysis? Discuss principle and steps involved in gravimetric analysis.
4. Write a detail note on Oxidation reduction titration.

SECTION-C

5. Write a short note on neutralization curves.
6. Explain the principle and applications of iodimetry.
7. Explain different types of errors.
8. Name the types of solvent used in non aqueous titration with the examples.
9. Write a note on different electrodes used in Conductometry.
10. Enlist the difference between masking and demasking agents.
11. What are the sources of impurities in medicinal agents?
12. Write a short note on diazotization titration.
13. Give principle and procedure for limit test of chloride.

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Total No. of Questions : 13

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B.Pharmacy (Sem.-1)
PHARMACEUTICAL INORGANIC CHEMISTRY
Subject Code : BP-104T

M.Code : 74647

Time : 3 Hrs.

Date of Examination: 23-12-2024

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :
1. SECTION A : compulsory

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and students have to attempt any **SEVEN** questions.

SECTION-A

1. Write in brief about the following:
 - a) Define Acid in term of bronsted concept.
 - b) Define acidifiers with examples.
 - c) Define Handerson-Hasselbach equation.
 - d) What are the uses of zinc sulphate solution?
 - e) Define the purpose of limit test.
 - f) What is Role of nitric acid in limit test of chloride?
 - g) What is radioactivity?
 - h) Write down the uses of Activated charcoal.
 - i) Name two antinquaries agents.
- j) Give the role of Ammonium chloride as an expectorant.

SECTION-B

2. What are the ideal properties of an antacid? Discuss how combination of antacids is useful. Write down the properties and medicinal uses of Magnesium hydroxide mixture.
3. Explain Define limit test. Name and draw labeled diagram of the apparatus used for limit test. Discuss in detail the principle, procedure and reactions involved in limit test lead.
4. Discuss briefly about physiological acid base balance. Explain oral rehydration salt.

SECTION-C

5. Write a note on sources of impurities in pharmaceutical substances.
6. Give an account on antacids. Describe the preparation of sodium bicarbonate.
7. What are expectorant and emetics?
8. Discuss mechanism and classification of antimicrobials. Give preparation of hydrogen peroxide.
9. Discuss iodine preparations as antimicrobial.
10. Discuss different causes and mechanism of tooth decay.
11. Write properties and medicinal uses of Bentonite.
12. Briefly write history of Pharmacopoeia.
13. Discuss the role of fluoride in the treatment of dental caries.

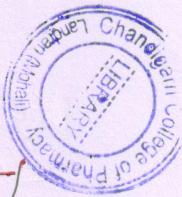
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**B. Pharmacy (Sem.-2)
PHARMACEUTICAL ORGANIC CHEMISTRY-I**

Subject Code : BP-202T

M. Code : 74968

Date of Examination: 08-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Briefly write about the following:

- a) Give uses of paraffins.
- b) What is Diels Alder reaction?
- c) Comment upon the stability of carbanions.
- d) Give the structures of two medically important alkyl halides.
- e) What are Metamers?
- f) Write down crossed cannizzaro reaction.
- g) Give chemical test to identify presence of alcohol.
- h) Give the structure and uses of lactic acid.
- i) Write any two methods of preparation of alkenes.
- j) How many isomers are possible for C_4H_8O . Give their chemical names.

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SECTION-B

2. Comment upon :

- a) Benzoin condensation
- b) Effect of substituent on acidity of carboxylic acids.

3. Give detailed note on different types of mechanisms involved in the nucleophilic substitution reactions of alkyl halides. Compare the two in detail and write down the factors affecting these mechanisms.

4. Account for the following :

- a) Halogenation of alkanes
- b) Structural isomerism in organic compounds.

SECTION-C

5. Explain the markonikov's and anti-markonikov's rule.
6. Write down various reactions of alcohols.
7. Classify organic compounds. Write down atleast one chemical reaction of each class.
8. Elaborate upon qualitative tests used to identify and to distinguish between various types of amines.
9. Write about the effect of base and solvent on E1 and E2 reactions.
10. What is the structure and uses of Chloral hydrate and vanillin?
11. Describe various methods of preparation of carbonyl compounds.
12. Give chemical tests to identify the presence of ethanoic acid, acetaldehyde and methylacetate.
13. Comment upon hybridisation in alkanes.

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Total No. of Pages : 02

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B.Pharmacy (Sem.-2)

Subject Code : BP-203T

M.Code : 74969

Date of Examination: 09-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Briefly explain the following :
 - a) Epimerism in monosaccharide
 - b) Structure of Sphingosine
 - c) Non-essential amino acid
 - d) Coupled reactions
 - e) Link between glycolysis and citric acid cycle
 - f) Function of Phosphoglucomutase
 - g) Pathophysiology of Albinism
 - h) Biological significance of dopamine
 - i) Phosphodiester linkage in nucleic acid
 - j) Coenzymes derived from vitamin B₃.

SECTION-B

2. Give detail account of glycogen metabolism.
3. Give outline for the conversion of cholesterol into various steroidal hormones.
4. Describe various types of RNA. Explain the biosynthesis of mRNA.

SECTION-C

5. Describe the various levels of protein structure.
6. How does cAMP synthesize from ATP. Comment on cAMP as secondary messenger.
7. Explain the hormonal regulation of blood glucose level.
8. Discuss synthesis of ATP by ETC.
9. Give reactions of β -oxidation of Palmitic acid.
10. Describe synthesis and biological significance of Adrenaline.
11. Describe transamination and deamination reactions and their biochemical significance.
12. Describe genetic code and its salient features.
13. Discuss diagnostic applications of enzymes of carbohydrate metabolism.

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Total No. of Pages : 02

B. Pharmacy (Semi.-2)
HUMAN ANATOMY AND PHYSIOLOGY-II
Subject Code BP-201T

M.Code : 74967

Date of Examination: 10-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. **Answer briefly:**
 - a) What is residual volume and inspiratory reserve volume?
 - b) Define endocrine glands.
 - c) What is GIT? Enlist various parts of GIT.
 - d) Highlight any two functions of cerebellum.
 - e) Indicate various types of ribs.
 - f) What is brush border enzyme?
 - g) Enlist various endocrine glands.
 - h) Mention any two functions of hypothalamus.
 - i) What do you mean by gametogenesis?
 - j) What is transcription and translation?

SECTION-B

2. Enlist organs of urinary system and discuss physiology of urine formation in detail.
3. Discuss physiology of hormones of anterior pituitary gland.
4. Outline various parts of digestive system and discuss the anatomy and physiology of small intestine.

SECTION-C

5. Add a brief note on hormones of thyroid gland.
6. Describe structure and functions of lungs.
7. Explain the process of nerve action potential generation.
8. Add a note on formation and role of ATP.
9. Discuss various methods of artificial respiration and resuscitation.
10. Write a short note on structure and functions of liver.
11. Describe various phases of menstrual cycle.
12. Write a note on BMR.
13. Write a note on basis of autosomal inheritance.

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Total No. of Pages : 02

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B.Pharmacy (Sem.-2)
PATHOPHYSIOLOGY
Subject Code : BP-204T
M.Code : 74970

Date of Examination: 07-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) What do you mean by oncogenes?
- b) What is the etiology of Rheumatoid arthritis?
- c) Write down clinical symptoms of Jaundice.
- d) What are the various diagnostic tests for detection of Typhoid?
- e) Define the terms Hypertrophy and Dystrophy.
- f) Differentiate between Syphilis and Gonorrhea.
- g) What is stroke?
- h) What are the disorders related to Thyroid hormone?
- i) What is Angina and its different types?
- j) What do you mean by cellular adaptation?

SECTION-B

2. Explain the etiology, pathology and symptoms of Asthma and COPD. Enumerate various differences between COPD and asthma.
3. What is cell injury? Explain various steps involved in cell injury during Ischemia and hypoxia.
4. Discuss the Etiology, Pathology, clinical symptoms and diagnosis of peptic ulcer.

SECTION-C

5. Explain pathophysiology of atherosclerosis.
6. Write a short note on renal failure. Discuss pathology of chronic renal failure in brief.
7. Discuss the pathophysiology of Parkinson's disease.
8. What do you mean by Inflammatory Bowel disease? Explain its pathology and clinical symptoms.
9. What is Congestive Heart Failure? Discuss its pathophysiology.
10. Discuss the role of WBC in acute inflammation with its mechanism.
11. Explain etiology, pathology and Characteristic features of Leprosy?
12. What is Rheumatoid arthritis? How it is different from osteoporosis and what are its characteristic features?
13. Write a short note on Gonorrhea and Syphilis.

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B. Pharmacy, (Sem.-3)
PHARMACEUTICAL ORGANIC CHEMISTRY-II

Subject Code : BP-301T
M. Code : 93323

Date of Examination : 16-12-2024

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Name various analytical constants used to determine quality of fatty acids.
- b) What is Friedel craft alkylation reaction?
- c) What are bent bonds?
- d) What is Kolbe reaction?
- e) Convert aniline into 1,3,5-Tribromobenzene.
- f) Write any two tests for detection of phenols.
- g) Which electronic groups will increase the acidity of benzoic acid?
- h) Give the structure and uses of BHC.
- i) Write any two methods of preparation of anthracene.
- j) What are drying oils?

SECTION-B

2. What are Diazonium compounds? Comment upon their stability and write a detailed note on their role organic synthesis.
3. Define aromaticity. Discuss giving examples various conditions required for a compound to be aromatic.
4. Write a detailed note on the various reactions of Fatty acids. Comment upon hydrolysis and rancidity of oils.

SECTION-C

5. Comment upon various electrophilic substitution reactions of benzene.
6. Give various methods of preparation and reactions of benzoic acid
7. Explain the theory of strainless rings.
8. Give the significance and principle involved in the determination of saponification value of fatty acids.
9. Comment upon the methods of preparation of cycloalkanes.
10. Write down various methods for synthesis and reactions of Aniline.
11. Write a detailed note on synthetic methods of naphthalene.
12. Write the structure and uses of DDT and Saccharin.
13. Write a detailed note on chemistry of isolated polynuclear hydrocarbons.

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**B. Pharmacy (Sem.-3)
PHARMACEUTICAL ORGANIC CHEMISTRY-II**

Subject Code : BP-301T

M.Code : 75105

Date of Examination: 16-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) Which analytical constant states about the unsaturation in Fatty acids? Define it.
- b) Give any two reactions of Anthracene.
- c) What are the limitations of Friedel craft alkylation reactions?
- d) Comment upon coupling reaction of diazonium salts.
- e) Write any two limitations of Bayer's strain theory.
- f) Write any two tests for detection of phenols.
- g) What is Coulson motif theory?
- h) Give the structure and uses of DDT.
- i) Write any two methods of preparation of Diphenylmethane.
- j) What are drying oils?

SECTION-B

2. Give various methods for the preparation and chemical reactions of cycloalkanes.
3. What are Aryl Diazonium compounds? Justify their stability in comparison to alkyl diazonium salts and enumerate various synthetic uses of benzene diazonium salt.
4. Elaborate on various electrophilic substitution reactions of benzene by giving the detailed mechanism of any one. Discuss in detail the effect of substituents on the reactivity of these reactions.

SECTION-C

5. Comment upon the orientation and reactivity of chlorobenzene towards electrophillic substitution reactions.
6. Give the significance and principle involved in the determination of saponification value of fatty acids.
7. Explain the effect of substituent on acidity of benzoic acid.
8. Comment upon hydrolysis and hydrogenation of Fats.
9. Enumerate various methods utilised for the synthesis of phenols.
10. Write down various methods for synthesis and reactions of Aniline.
11. Write a detailed note on synthetic methods of naphthalene.
12. Define aromaticity. Give various conditions to be fulfilled by a organic compound to possess aromaticity.
13. Write a detailed note on chemistry of isolated polynuclear hydrocarbons.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

**B.Pharmacy (Sem.-3)
PHYSICAL PHARMACEUTICS-I**

Subject Code : BP-302T

M.Code : 75106

Date of Examination: 18-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Define briefly:

- a) What is meant by intrinsic solubility?
- b) State Raoult's Law with its applications.
- c) What is meant by interfacial tension?
- d) What are chelates? Give two examples.
- e) What is absolute humidity?
- f) What is glass transition temperature?
- g) What are polar and semi-polar solvents? Give two examples each.
- h) Define HLB value and its scale.
- i) Differentiate between physical adsorption and chemisorption.
- j) What is spreading coefficient?

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SECTION-B

2. Discuss the pH titration method for determination of stoichiometric ratio in a complex.
3. What is an 'ideal solution'? Differentiate between complete miscibility and partial miscibility phenomena taking suitable examples.
4. Differentiate between surface tension and interfacial tension. With the help of suitable equations explain spreading of one liquid on another liquid.

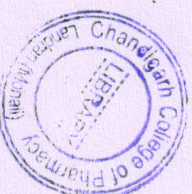
SECTION-C

5. Discuss the calculation of buffer capacity and its significance.
6. A 100 ml solution of ephedrine sulphate is to be made isotonic. How much dextrose should be added for this purpose? (Given: 'F' value of ephedrine sulphate is 0.23 and of dextrose is 0.16).
7. What are amorphous and crystalline solids? Give examples of polymorphism and highlight the advantages and disadvantages of polymorphic behavior of solids.
8. Explain self-association phenomena.
9. Classify surfactants and write a note on detergency.
10. Write a note on dissociation constant and its significance.
11. What is glassy state of a solid? Explain the properties of such a solid and its significance in dosage form performance.
12. Differentiate between solvation and association with examples.
13. Briefly discuss the factors influencing the solubility of drugs.

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Roll No.

Total No. of Questions : 13

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**B. Pharmacy (Sem.-3)
PHARMACEUTICAL MICROBIOLOGY**

Subject Code : BP-303T

M.Code : 75107

Date of Examination: 20-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) Differentiate between prokaryotes and eukaryotes.
- b) Explain the ultra structure of Bacteria.
- c) What is the importance of laminar air flow?
- d) MIC
- e) Sterilization
- f) Grams staining
- g) Disinfectants
- h) Antimicrobial agents
- i) Suggest a suitable method for the sterility testing of ophthalmic and solids.
- j) Suggest a suitable method for the sterilization of 0.9% w/v sodium chloride injection and petriplates.

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SECTION-B

2. a. Explain the application of cell cultures in pharmaceutical industry and research.
b. Enumerate any one equipments for the large scale sterilization of pharmaceuticals.
3. Write short note on
a. Sterilization by filtration.
b. Microbial Assay of vitamins.
4. Enumerate the methods for the standardization of antibiotics.

SECTION-C

5. Distinguish between :
a. Toxins and toxoid
b. Sterility testing and sterilization
6. Explain the bacterial growth curve. What are the methods to identify bacteria?
7. Explain the different methods for the evaluation of disinfectants.
8. Highlight principle, construction, working and validation of horizontal laminar air flow.
9. What are the factors affecting the microbial spoilage of pharmaceutical products?
10. Explain the assessment of microbial contamination and spoilage.
11. Explain the sterility testing according to IP standards.
12. Enumerate morphology, classification and cultivation of fungi.
13. Write short note on sterility indicators.

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**B.Pharmacy (Sem.-3)
PHARMACEUTICAL ENGINEERING**

Subject Code : BP-304T

M.Code : 75108

Time : 3 Hrs

Date of Examination: 23-12-2024

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

- 1. Explain briefly:**
- a) Size reduction
 - b) Application of Bernoulli's theorem
 - c) Black body
 - d) Zeotropic mixture
 - e) Radial flow
 - f) Liquid-liquid mixing
 - g) Gavanization
 - h) Evaporation
 - i) Triple point of water
 - j) Filter cake.

SECTION-B

2. Describe in detail the principle, construction, working, advantages of rotameters.
3. Write an explanatory note on fractional distillation.
4. Discuss in detail the construction and working of filter press.

SECTION-C

5. Describe a mill based on the principle of impact and attrition.
6. Distinguish between sedimentation and elutriation as a method of separation.
7. Write a note on behavior of solids during drying.
8. Explain the Single Metal Corrosion and Galvanic Corrosion in detail.
9. Describe the working, uses, merits and limitations of sigma blade mixers.
10. Write a note on principle and applications of fluidized bed dryers.
11. Describe the significance of material handling.
12. Write a note on the use of stainless steel as a material of plant construction.
13. Write a note on cyclone separator.

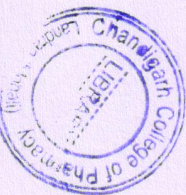
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SECTION-B

Total No. of Questions : 13

B.Pharma (Sem.-4)

MEDICINAL CHEMISTRY-I

Subject Code : BP-4

M.Code : 75844

Date of Examination : 09-12-2024

Max. Marks : 75

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. Explain the Terms :
 - a) Briefly explain the role of the partition coefficient in drug action with an example.
 - b) Define chelation.
 - c) Give the structures of catecholamines act as neurotransmitters.
 - d) Give structures and IUPAC names of any two parasymphathomimetics.
 - e) Comment on tissue distribution of cholinergic receptors.
 - f) Give structures and IUPAC names of any two acidic NSAIDs.
 - g) Give structure and medicinal use of any one narcotic antagonist.
 - h) Give typical structural features for a compound to be anticonvulsant.
 - i) Give structure and medicinal uses of Clonazepam.
 - j) Give synthesis of Halothane.

SECTION-B

2. Explain SAR of parasympathomimetic agents. Give synthesis and mechanism of action of Neostigmine.
3. Explain SAR of phenothiazine class of antipsychotic. Give synthesis and mechanism of action of Chlorpromazine hydrochloride.
4. Describe various classes of anticonvulsant citing one structural example of each class. Give synthesis of Phenytoin.

SECTION-C

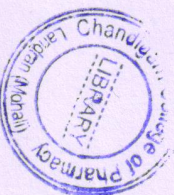
5. Explain the effect of ionization solubility of drug molecules on their action.
6. Describe the factors affecting drug metabolism.
7. Describe the role of Cytochrome P450 system in drug metabolism.
8. Give synthesis and medicinal uses of propranolol.
9. Write short note on direct acting parasympathomimetic agents.
10. Describe the hydanotin class of anticonvulsants.
11. Give synthesis and mechanism of action of Mefenamic acid.
12. Write short note on dissociative anesthetics.
13. Describe structures and functions of cholinergic neurotransmitters.

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharma (Sem.-4)

PHARMACEUTICAL ORGANIC CHEMISTRY-III
RD 404 T

Subject Code : BP-401 T

M Code : 75843

Date of Examination: 11-12-2024

Max. Marks : 75

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. Write short notes on:
 - a) Describe the conditions that lead to a molecule being chiral or achiral.
 - b) Can you provide an example of a molecule with both E and Z stereoisomers?
 - c) What is a meso compound, and how does it differ from other chiral molecules?
 - d) Identify the key factors that lead to the formation of geometrical isomers in organic compounds.
 - e) What is meant by the term "asymmetric modification" in stereochemistry?
 - f) Which compound among pyrrole, furan, and thiophene exhibits the highest aromaticity?
 - g) Compare the structural differences between pyridine, quinoline and isoquinoline.
 - h) Write structures and specific medicinal uses of imidazole.
 - i) What is the primary function of Wolff-Kishner reduction in organic synthesis?
 - j) What is the purpose of the Oppenauer oxidation in synthetic chemistry?

SECTION-B

2. Discuss the RS system of nomenclature for optical isomers. How does it relate to absolute configuration?
3. Provide a comprehensive overview of the Claisen-Schmidt condensation, explaining the reaction mechanism.
4. Compare and contrast the conformational isomerism in ethane, n-butane and cyclohexane.

SECTION-C

1. What is racemic modification, and how does it relate to the resolution of racemic mixtures?
2. Explain the principles of asymmetric synthesis, including partial and absolute asymmetric synthesis.
3. Define atropisomerism and describe the stereochemistry of biphenyl compounds.
4. Define stereospecific and stereoselective reactions in organic chemistry.
5. Discuss the synthesis and medicinal uses of pyrrole and thiophene derivatives.
6. Explain the synthesis of azepines and discuss their potential therapeutic applications.
7. Explain the concept of basicity in pyridine and compare it to other heterocyclic compounds.
8. Write the synthesis and medicinal uses of indole and its derivatives.
9. Discuss Beckmann's rearrangement and its role in converting oximes into amides.

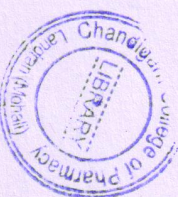
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DEC-2024

Total No. of Pages : 02

B. Pharmacy (Sem.-4)

PHARMACOLOGY-I
Subject Code : BP-404 T

M.Code : 75846

Date of Examination: 13-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) What is tacitlyphaxis? Give suitable example.
- b) What is bioavailability & bioequivalence?
- c) Define pharmacokinetics & pharmacodynamics.
- d) What are AChE inhibitors? Give two examples.
- e) What are nuclear receptors? Give examples.
- f) What is sublingual route of drug administration? Highlight its advantages.
- g) Name two opioid antagonists.
- h) What are local anesthetics? Give two examples.
- i) What are excitatory neurotransmitters? Give examples.
- j) What is myasthenia gravis? Name a drug for this condition.

SECTION-B

2. What is drug absorption? Discuss in detail about various factors affecting drug absorption.
3. What are para-sympathomimetics? Classify them and discuss pharmacology of acetylcholine.
4. Classify anti-depressants and discuss pharmacology of tricyclic antidepressants.

SECTION-C

5. Add a note on membrane transport.
6. Compare and contrast oral and intravenous routes of drug administration.
7. Add note on levodopa-Carbidopa as anti-Parkinsonian agents.
8. Describe various stages of general anaesthesia.
9. Write a short note on pharmacology of morphine.
10. Write a brief note on anti-Alzheimer drugs.
11. Add a note on phenothiazines as anti-psychotic agents.
12. Write a note on lignocaine as local anesthetic agent.
13. Describe mechanism of action of benzodiazepine and also highlight adverse effects of benzodiazepines.

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Dec-2024

Roll No.

Total No. of Pages : 02

Total No. of Questions : 12

Pharm.D. (Sem.-4)
BIOSTATISTICS AND RESEARCH METHODOLOGY

Subject Code : PD404T/19

M.code : 93763

Date of Examination : 11-12-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

- SECTION-A contain SEVEN questions. Attempt any FIVE questions. Each question will carry TWO marks each.
- SECTION-B contains EIGHT questions. Attempt any SIX questions. Each question will carry FIVE marks.
- SECTION-C contains THREE questions. Attempt any TWO questions. Each question will carry FIFTEEN marks.

SECTION-A

1. Write short notes on :

- Define power of a study.
- Define Standard deviation.
- Draw the graphs of Positive and negative correlation.
- Mention the importance of SPSS software.
- Give any three uses of computers for pharmaceutical care.
- Define Null hypothesis and level of significance.
- Write the formula for kruskhal walli test and explain terms.

SECTION-B

- Give a brief account of Pie charts and histogram.
- Write a short note on attributable risk.
- Two types of drugs were used on 5 and 7 patients for reducing their weight. Drug A was imported and Drug B is indigenous. The Decrease in weight after using 6 months as follows :

Drug A	10	12	13	11	14		
Drug B	8	9	12	14	15	10	9

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Is there a significant difference in the efficacy of the two drugs (For $v=10$ $t_{0.05}$ is 2.223; For $v=9$ $t_{0.05}$ is 2.262; For $v=11$ $t_{0.05}$ is 2.201 For $v=12$ $t_{0.05}$ is 2.179). Take the appropriate t value from the above and interpret your result.

- Describe various types of data distribution.
- Explain the advantages of computerized literature retrieval.
- Write the various formulas used in regression and give its importance.
- Define mean, median, mode and standard error of mean with formulas.
- How you will maintain patient record database in hospital? Justify your answer with suitable examples.

SECTION-C

- From the data given below about the treatment of 250 patients suffering from a disease, State whether the new treatment is superior to the conventional treatment

Treatment	No. of Patients		
	Favourable	Not Favourable	Total
New	140	30	170
Conventional	60	20	80
Total	200	50	250

(Given for Degrees of Freedom = 1 Chi square 5% = 3.84)

- Perform One-way ANOVA for the data

Schools			
A	B	C	
2	4	5	
3	4	6	
4	4	4	

Is there any significant difference between three schools or not?

[For (2,6) D.F $F_{0.05}$ is 5.14]

- Discuss in detail report writing and presentation of data.
 - Write a note on correlation.
- Describe in detail designing of research methodology.
 - Write a short note on accounting and ledger system.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

**B.Pharmacy (Sem.-4)
PHYSICAL PHARMACEUTICS-II**

Subject Code : BP403T

M.Code : 75845

Date of Examination: 14-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a. Types of colloidal systems
- b. Zeta potential
- c. Thixotropy
- d. Pseudoplastic flow
- e. Specific surface
- f. Porosity
- g. Sedimentation theory
- h. Controlled flocculation
- i. Ionic strength
- j. Photolytic degradation

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SECTION-B

2. Describe in detail the factors affecting solubilization capacity of surfactants with examples.
3. Discuss in detail the flocculated and deflocculated suspensions with examples.
4. Write an explanatory note on the methods to determine surface area.

SECTION-C

5. Classify the colloidal dispersions on the basis of the size.
6. Explain the concept of negative thixotropy with examples.
7. Write a note on falling sphere viscometer.
8. Describe the rheological properties of emulsions.
9. Illustrate the important derived properties of powders.
10. Explain the significance of accelerated stability testing.
11. Describe the influence of ionic strength and pH on reaction rate.
12. Write a note on optical properties of colloids.
13. Differentiate between Newtonian and non-Newtonian fluids.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

**B. Pharma (Sem.-4)
PHARMACOLOGY & PHYTOCHEMISTRY-I**

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 17-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly :

- a) Define organoleptic evaluation.
- b) Define PTC.
- c) How ash values contribute to quality control of crude drugs?
- d) Discuss the advantages and disadvantages of cultivated medicinal plant.
- e) What are tannins? Give their properties.
- f) Define edible vaccines.
- g) What are pseudoalkaloids? Give example.
- h) Write about conservation of medicinal plants.
- i) Give the complete biological source of gum tragacanth.
- j) What are primary and secondary metabolites?

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SECTION-B

2. Discuss in detail about types and nutritional requirements of plant tissue culture.
3. What are crude drugs? Give the different sources of drugs. Explain in detail animals as a source of drugs.
4. Describe in detail about:
 - a) Plant hormones and their applications
 - b) Cotton

SECTION-C

5. How does microscopical evaluation play significant role in crude drug evaluation? Justify your answer with suitable examples.
6. Write an informative note on novel medicinal agents from marine sources.
7. What are gums? Give the biological source, chemical constituents and uses of gum *Acacia*.
8. Define mutation Explain it with reference to medicinal plants.
9. What are Flavonoids? Give the identification tests and properties of flavonoids.
10. Explain the various factors influencing cultivation of medicinal plants.
11. What are enzymes? Explain in detail about Papan.
12. Briefly explain the applications of plant tissue culture.
13. Discuss the role of Pharmacognosy in allopathy and traditional systems of medicine.

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Total No. of Questions : 13

Total No. of Pages : 02

**B. Pharmacy (Sem.-5)
MEDICINAL CHEMISTRY II-THEORY**

Subject Code : BP501T

M.Code : 76786

Date of Examination : 10-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Draw structure, give IUPAC name and uses of following drugs:

- a) Levocetazine
- b) Oneprazole
- c) Nifedipine
- d) Captopril
- e) Phenytoin
- f) Digoxin
- g) Tadalafil
- h) Metformin
- i) Benzocaine
- j) Betamethasone

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SECTION-B

2. Give about histamine receptors distribution in human body. Give synthesis of promethazine hydrochloride.
3. Classify diuretics with examples. Give synthesis and uses of furosemide.
4. Classify Local anaesthetics by citing suitable examples. Give SAR of these drugs along with synthesis of benzocaine.

SECTION-C

5. Write a note on anti-metabolites class of anticancer drugs. Give synthesis and uses of mercaptopurine.
6. Write a note on calcium channel blockers class of anti-anginal drugs.
7. Give a brief note on carbonic anhydrase inhibitors. Give synthesis of acetazolamide.
8. Explain anti-hyperlipidemic agents.
9. Write short note on oral contraceptives with suitable examples.
10. Give synthesis and mechanism of action of procaine.
11. Write a detailed note on thiazolidinediones class of anti-diabetics.
12. Give structure, synthesis and uses of triprolidine hydrochloride.
13. Discuss calcium channel blockers which are used as anti-anginal drugs.

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Roll No.

Total No. of Pages : 02

SECTION-B

Total No. of Questions : 13

B.Pharmacy (Sem.-5)
PHARMACOLOGY-II THEORY
Subject Code : BP503T
M.Code : 76788
Date of Examination : 25-11-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) What is nitrate tolerance? Highlight its mechanism of action.
- b) What are statins? Give two examples, how do they act?
- c) How aspirin is useful as anti-platelet agent?
- d) Highlight advantages of low molecular heparins.
- e) What are α -glucosidase inhibitors? Give examples, where they are indicated?
- f) What are selective COX-2 inhibitors? Give examples.
- g) What is thyroid storm? Mention two drugs for this condition.
- h) What are anabolic steroids? Give two examples.
- i) What is finasteride? Indicate therapeutic implications of finasteride.
- j) Define and classify bioassay.

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SECTION-C

2. Classify anti-hypertensive drugs and discuss pharmacology of ACE inhibitors.
3. Classify oral hypoglycemic agents and discuss pharmacology of sulfonylureas.
4. Classify NSAIDs and discuss pharmacology of aspirin.
5. Write a note on mechanism of action and adverse effects of nitrates in angina.
6. Add a note on fibrinolytic agents.
7. Write a brief note on pharmacology of oral anticoagulants.
8. Classify diuretics and add a note on high ceiling diuretics.
9. Add a note on 5-HT.
10. Write a note on thioamides as anti-thyroid drugs.
11. Add a brief note on plasma volume expanders.
12. What are hormonal contraceptives? Indicate various hormonal pills and highlight adverse effects of hormonal contraceptives.
13. Add a note on bioassay of digitalis.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

**B.Pharmacy (Sem.-5)
PHARMACOLOGY AND PHYTOCHEMISTRY II-THEORY**

Subject Code : BP504T

M.Code : 76789

Date of Examination: 28-11-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a. Name the pathway and the starting compounds for the biosynthesis of phenylalanine.
- b. What is the principle of Thin Layer chromatography?
- c. Give the classification of cardiac glycosides.
- d. Give complete biological sources of 2 plants that contain resins.
- e. Which method will you use for extraction of volatile oils from plants?
- f. What information can you get from IR spectra of a phytoconstituent?
- g. Give the source and structure of an anticancer phytoconstituent.
- h. What are the commercial applications of tannins?
- i. Give the complete biological source and uses of a plant that contains Tropane Alkaloids.
- j. Give the structure of major phytoconstituent present in Liquorice.

SECTION-B

2. Describe the biosynthesis of Steroidal Glycosides.
3. Describe the applications and advantages of different spectroscopic and chromatographic techniques in plant drug investigations.
4. Give a detailed account on types, sources, tests, therapeutic uses and industrial production of Saponin glycosides.

SECTION-C

5. Give the principle and applications of NMR Spectroscopy in study of crude drugs.
6. Give the principle, applications and limitations of Gas chromatography.
7. Compare black and pale catechu.
8. Give a detailed account on chemistry and uses of opium alkaloids.
9. Describe the industrial production, estimation and utilization of vinblastine and vincristine.
10. Describe the methods used to study biosynthetic pathways.
11. Write a note on 'green methods' of extraction.
12. Write a detailed note on isolation of constituents, uses and commercial applications of Mentha.
13. Describe the properties and classification of Glycosides.

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Total No. of Pages : 02

Total No. of Questions : 13

**B. Pharmacy (Sem.-5)
PHARMACEUTICAL JURISPRUDENCE-THEORY**

Subject Code : BP505T

M. Code : 76790

Date of Examination : 05-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Define :

- a) Inspectors appointed by state as well as Central Council are eligible for renomination.
- b) Sample label of Schedule C and C1 drugs.
- c) Objective of Poison Act.
- d) Differentiate between manufacture in bond and outside bond.
- e) Psychotropic substances.
- f) Patent or proprietary medicine.
- g) Import of drugs for self-usage.
- h) Who could be registered in first register?
- i) Full form of NLEM and DPCO.
- j) Code of Ethics.

SECTION-B

2. Describe the conditions imposed on import, export and shipment of narcotics substances according to Narcotics drugs and Psychotropic substances act.
3. Describe the constitution of PCL. What are the education regulations and how are they implemented by PCI?
4. Give a brief account of Schedule M.

SECTION-C

5. Discuss the provisions of "The Prevention of Cruelty to Animals Act" regarding breeding and stocking of animals.
6. Write a brief note on Hathi Committee.
7. What is MAF? How it is calculated? How the prices of category 1 and category formulations are revised?
8. Discuss the provisions of DPCO relating to price lists.
9. Discuss the provisions for manufacturing of ayurvedic and homeopathic preparations containing alcohol.
10. What are the main objectives of Pharmacy Act, 1948?
11. What class of advertisements are exempted conditionally? Mention their conditions.
12. Briefly discuss RTI.
13. Give a brief account of clinical trials for import or manufacture of new drugs.

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Total No. of Questions : 13

B.Pharmacy (Sem.-5)
INDUSTRIAL PHARMACY I-THEORY

Subject Code : BP502T

M.Code : 76787

Date of Examination: 02-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. Define the following :
 - a) Give two examples each of oil and water-soluble preservatives used in liquid dosage forms.
 - b) What is meant by pK_a ?
 - c) Give examples of directly compressible diluents.
 - d) What are metered dose inhalers and what are the advantages associated with them.
 - e) Enlist four enteric coating polymers.
 - f) What is SPF and its range for Asian pacific people?
 - g) Enlist defect of tablet coating.
 - h) Write down difference between amorphous and crystalline nature of drug.
 - i) Write the difference between cold cream and vanishing cream.
 - j) Write down difference between SVPs and LVPs.

SECTION-B

2. Give a dated account of soft gelatin production process. Briefly discuss the quality control tests performed on soft gelatin capsules.
3. Discuss the quality control tests conducted on aerosol products.
4. Discuss the preformulation studies conducted while formulating parenteral (I.M.) injection.

SECTION-C

5. Comment on the formulation additives used in lyophilized sterile products.
6. Briefly discuss the formulation requirements of pellets.
7. What is minimum per gram factor? Mention its utility in soft gelatin capsules.
8. Enumerate liquid filling equipments and describe the operation of any one.
9. Mention the defects encountered in coated tablets and mention the remedies for them.
10. Discuss the stability testing parameters for suspensions.
11. Enumerate different types of valves used in aerosol products and mention their functions.
12. Give an account of hair dyes and their formulations.
13. What note on BCS classification and its significant role in development of formulation?

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DEC-2024

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-6)

PHARMACOLOGY-III(THEORY)

Subject Code : BP602T

M.Code : 77987

Date of Examination: 09-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

1. Answer the following:
 - a) Write drug of choice for acute asthmatic attacks.
 - b) How laxatives are different from purgative?
 - c) Give the treatment for morphine poisoning.
 - d) Explain chemotherapy.
 - e) What are monoclonal antibodies? Give examples.
 - f) Write steps involved in malaria cycle.
 - g) Define super-infection and drug resistance.
 - h) Write causative agents of TB and malaria.
 - i) What are biosimilars? Give examples.
 - j) Define terms teratogenicity and mutagenicity.

SECTION-B

2. What is bronchial asthma? Classify anti asthmatic drug. Write pharmacology of anticholinergic drugs and methylxanthine.
3. Classify anti-microbial agents. Give detail note on pharmacology of drugs inhibiting translation and drugs affecting DNA and RNA.
4. What are immunosuppressants? Write mechanism of action and adverse effects of calcineurin inhibitors, purines synthesis inhibitors and thalidomide.

SECTION-C

5. Explain therapeutic uses and side effects of cyclosporine.
6. Define resistance. Write about prevention of anti-microbial resistance.
7. Write a detail note pharmacology of methotrexate.
8. Write clinical symptoms and treatment of heavy metal poisoning.
9. Give detail note on mechanism of action and toxicity of penicillin.
10. Explain rational behind combined therapy of anti-microbial agents.
11. Write mechanism of action of tetracycline. How tetracyclines causes teeth discoloration?
12. Classify anti-viral drugs. Explain pharmacology of zidovudine.
13. Write a note on respiratory stimulants.

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-6)
PHARMACEUTICAL BIOTECHNOLOGY

Subject Code : BP605T

M.Code : 77990

Date of Examination : 11-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Distinguish between :

- a. Fed-Batch culture and Continuous culture
- b. Antigen and Antibody
- c. Toxin and Toxoid
- d. Vaccine and enzymes

Define with examples:

- e. Biotechnology
- f. Transformation
- g. Fermenter
- h. Monoclonal antibody
- i. Cloning
- j. Protease

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SECTION-B

2. Explain the isolation of Griseofulvin by fermentation technology.
3. Explain immuno blotting techniques with example of each.
4. Explain in detail production of serum immune blood derivatives.

SECTION-C

5. Explain the use of culture system for the production of microbial products.
6. Write short note on :
 - a. Vaccine hepatitis
 - b. Interferon
7. Explain the Structure of immunoglobulins.
8. Enumerate hypersensitivity reactions, immuno stimulation and immune suppressions.
9. Highlight the techniques of immobilization of enzymes.
10. Give general method of preparation of antitoxin.
11. What is the genetic organization of eukaryotes?
12. Explain the collection processing and storage of whole human blood.
13. Explain microbial biotransformation .

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-6)
HERBAL DRUG TECHNOLOGY-THEORY

Subject Code : BP603T
M.Code : 77988

Date of Examination : 14-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and students have to attempt any **SEVEN** questions

SECTION-A

1. Answer the following:

- a) What are phytoconstituents and herbal drug preparations? Give suitable examples
- b) What are biopesticides?
- c) What is the difference between Churna and Bhasma?
- d) Mention 2 nutraceuticals that will be beneficial for patient with CVS disorders.
- e) Mention the uses, side effects and possible interactions of Garlic.
- f) Give complete source and major constituent of two natural colourants.
- g) What is the Schedule T of Drugs and Cosmetics Act?
- h) Give the conditions for long term stability testing of herbal formulations.
- i) Give two examples of Indian herbal cosmetic industries. Give One advantage and one limitation of using herbal cosmetics.
- j) What is the difference between bioprospecting and biopiracy?

SECTION-B

2. Discuss the need for and the steps involved in organic farming of medicinal and aromatic plants. Illustrate your answer with appropriate examples.
3. What are the regulatory requirements for Herbal and Traditional medicine in India?
4. Write a detailed account on advantages, challenges, present status and future prospects of the Indian herbal drugs and cosmetics industry.

SECTION-C

5. What are the objectives and components of Schedule Z of Drugs and Cosmetics Act of India?
6. Describe IPRs for natural products.
7. Write a detailed note on Natural sweeteners and binders used in pharmaceutical industry.
8. Write a note on plants used in hair care cosmetics.
9. What are the WHO and ICH guidelines for assessment of herbal drugs?
10. What are health supplements and nutraceuticals? How are they classified?
11. What are the basic principles of Siddha and Unani medicine?
12. How will you select, identify and process plant material for preparing a solid dosage formulation?
13. How are Asavas and Arisats prepared and standardized?

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Total No. of Pages : 02

B.Pharmacy (Sem.-6)
MEDICINAL CHEMISTRY-III (THEORY)
Subject Code : BP601T

Subject Code : BP601T
M.Code : 77986

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and students have to attempt any **SEVEN** questions.

SECTION-A

1. Write Briefly:

- Draw the structure and give the chemical name of Metronidazole.
- Write down various steps involved in the synthesis of Nitrofurantoin.
- Give any two examples of antitubercular antibiotics.
- What is Taft Steric parameter?
- Define partition coefficient.
- Name any two Antifungal agents of natural origin.
- Write the structure and moa of Paracetamol.
- Give the therapeutic uses of folic acid reductase inhibitors.
- Write down the structure of any two Tetracyclines.
- Give the mechanism of action and structure of ciprofloxacin.

SECTION-B

2. Write the structure, mechanism of action, synthesis and uses of following drugs :
 - a) Diethylcarbamazine
 - b) Dapsone
3. Explain the mechanism of action of beta-lactam antibiotics. Discuss their classification and SAR.
4.
 - a) Discuss the basic concept and applications of Prodrug Design.
 - b) Comment upon SAR of Quinolones.

SECTION-C

5. Write short notes on Pharmacophore modeling.
6. Write a note on SAR of Sulfonamides.
7. Classify Antiviral agents. Give examples of each class.
8. Explain the concept and applications of solution phase synthesis.
9. What is Prodrugs? Explain various applications of Prodrugs.
10. Comment upon the moa, structure and synthesis of Chloramphenicol.
11. Write a short note on Anthelmintic agents.
12. Write a detailed note on Quinolone class of antibiotic agents.
13. Give the moa and uses of Ethambutol and Isoniazid.

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Total No. of Pages : 02

Total No. of Questions : 13

B. Pharmacy (Sem-6)
QUALITY ASSURANCE-THEORY
Subject Code : BP-606T

M.Code : 77991

Date of Examination : 19-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

1. Define briefly :

- a) QBD
- b) OOS
- c) Quality assurance
- d) ISO 9000
- e) Validation
- f) SOP
- g) Triple role concept
- h) ISO 14000
- i) Master formula record
- j) Calibration

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SECTION-B

2. What is ICH? What is the purpose of ICH guidelines? Explain briefly the various categories of ICH guidelines. Enlist various ICH Quality guidelines. Discuss the ICH guidelines for analytical method validation.
3. What are the objectives of GMP? Discuss the GMP provisions regarding the Organization and Personnel, Facilities, Equipment and Testing facilities.
4. Explain the NABL accreditation in detail.

SECTION-C

5. Differentiate between GLP and GMP.
6. Discuss the audit cycle.
7. Briefly discuss the protocol of non clinical laboratory studies.
8. Explain the use of Quality loop and spiral loop of process model in Quality assessment system.
9. Discuss the process of quality review. How the documentation helps in this process?
10. What is product recall? Explain procedure of product recall.
11. Discuss the process of material management, what is the objective of material management in pharma industry?
12. Discuss the elements of TQM.
13. Explain various quality control tests on secondary packaging material.

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharm. (Sem.-7)

NOVEL DRUG DELIVERY SYSTEM-THEORY

Subject Code : BP704T

M.Code : 78390

Date of Examination : 02-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Give one example for biodegradable and non-biodegradable polymers.
- b) Write the classification of liposomes.
- c) Give the one advantage and one disadvantage of mucoadhesive formulation.
- d) Define microencapsulation.
- e) What are Quantum Dots and how they are prepared?
- f) Give the mechanism of mucoadhesion.
- g) Write any two advantages of implants.
- h) Define permeation enhancer with example.
- i) Define liposomes with example.
- j) What are IUDs?

SECTION-B

2. Describe various formulation approaches of TDDS.

3. Discuss various theories of mucoadhesion with their significance in the designing of mucoadhesive products

4. Write a note on :

- a) Intravitreal drug delivery systems
- b) Principal uses of polymers

SECTION-C

5. Describe factors affecting permeation of drug through the skin.

6. Write a note on controlled release polymers.

7. Give an account of applications of mucoadhesive drug delivery systems.

8. Explain therapeutic applications of implants.

9. Write a note on nasal sprays.

10. What are monoclonal antibodies? Give its applications.

11. Define ocular inserts. Classify them with examples.

12. Write down advantages and disadvantages of Ocusert.

13. Give the importance of liposomes with suitable examples.

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Total No. of Pages : 02

Total No. of Questions : 13

INDUSTRIAL PHARMACY – II (THEORY)

B.Pharm. (Sem.-7)

Subject Code : BP702T

M.Code : 78388

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Define analytical method transfer.
- b) Give the importance of Biostatistics in Industrial pharmacy.
- c) Write the full form of NRD.C.
- d) Define the term Out of Specifications.
- e) Classify ISO 9000 Series for quality system standards.
- f) Give the advantages of bioequivalence studies.
- g) Define semi solid dosage form with example.
- h) Give the full form of INDA and NDA and its importance.
- i) Define QbD.
- j) Define TQM.

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SECTION-B

2. Write a note on :

- a) Drug Metabolism
 - b) Non clinical drug development
3. Discuss in detail about the concept of quality and QbD.
 4. Discuss various pilot plant scale up considerations for solids.

SECTION-C

5. Describe salient features of GLP.
6. Write a note on clinical research protocols in brief.
7. Describe the organization structure of CDSCO.
8. Explain Quality risk management.
9. Describe SUP AC guidelines.
10. Give an account of general considerations of IND.
11. Explain salient features of ISO 9000.
12. Write a note on analytical method transfer.
13. How biostatistics is useful in pharmaceutical product development?

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Roll No.

Total No. of Questions : 13

Time : 3 Hrs.

Max. Marks : 75

B. Pharmacy. (Sem.-7)
PHARMACY PRACTICE - THEORY
Subject Code : BP703T
M.Code : 78389
Date of Examination : 25-11-2024

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Define over the counter drugs.
- b) What do you know about clinical Pharmacy?
- c) Define danger level.
- d) Define Secondary care hospital.
- e) Enlist sources of drug information.
- f) Define Budget.
- g) Draw a layout of community pharmacy.
- h) Define pharmaceutical care.
- i) Describe a purchase order.
- j) Define EOQ analysis.

SECTION-B

2. Explain the organization and policies of PTC.
3. Explain role of pharmacist in education and training program and code of ethics for community pharmacy.
4. Define, classification, reporting and management of adverse drug reaction.

SECTION-C

5. Explain the drug distribution system for inpatients.
6. Explain the role of pharmacist in medication adherence.
7. Define automatic stop order for inpatient and outpatient.
8. Define patient counselling and write the steps involved in patient counselling.
9. What are the dispensing procedure for narcotics and controlled substances in the hospital?
10. Explain in detail roles and responsibilities of clinical pharmacist.
11. Elaborate the methods of inventory control.
12. Define DUR, write its objectives and explain classification of DUR.
13. Define therapeutic drug monitoring and factors considered during TDM.

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Total No. of Pages : 02

Total No. of Questions : 13

INSTRUMENTAL METHOD OF ANALYSIS-THEORY

B.Pharmacy (Sem.-7)

Subject Code : BP-701T

M.Code : 78387

Date of Examination : 05-12-2024

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

I. Write briefly :

- a. Define bathochromic and hypsochromic shift.
- b. What is principle of chromatography?
- c. Give two properties of ion exchange resins.
- d. Define R_f value?
- e. Define fingerprint region.
- f. What is the principle of nepheloturbidimetry?
- g. Write two application of flame photometry.
- h. Define singlet and triplet state.
- i. Define partition coefficient.
- j. Define electrophoresis.

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SECTION-B

2. Describe the principle, instrumentation and applications of Atomic Absorption Spectroscopy.
3. Explain the theory, instrumentation, and applications of Gas Chromatography.
4. Describe the sources of radiation, wavelength selectors, and detectors used in IR spectroscopy.

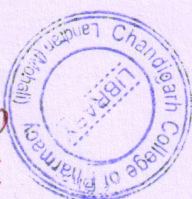
SECTION-C

5. Explain the concept of electronic transitions and chromophores in UV-visible spectroscopy.
6. Discuss the factors affecting fluorescence and quenching in fluorimetry.
7. What are the sources of radiation, wavelength selectors and detectors used in Flame Photometry?
8. Explain the methodology and applications of Thin Layer Chromatography.
9. What is the theory behind ion exchange chromatography? Discuss the properties of ion exchange resins.
10. Describe the methodology and applications of Gel chromatography.
11. Discuss the factors affecting electrophoretic mobility in Electrophoresis.
12. Write a note on various vibrations in IR spectroscopy.
13. Explain the concept of Beer and Lambert's law and its deviations in UV-visible spectroscopy.

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Total No. of Pages : 02

Total No. of Questions : 13

**B. Pharmacy (Sem.-8)
SOCIAL AND PREVENTIVE PHARMACY**

Subject Code : BP802T

M. Code : 79765

Date of Examination : 15-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Mention any four factors which have impact on urban health.
- b) Define social and mental health.
- c) What is SARS?
- d) Write salient features of National programme for control of blindness.
- e) Define malnutrition and diseases associated with it.
- f) Write the mode of transmission of Ebola virus.
- g) Write the steps involved in improving rural sanitization.
- h) Define DOTS.
- i) Define drug addiction and drug substance abuse.
- j) Write the mode of transmission and symptoms of influenza.

SECTION-B

2. Discuss about integrated disease surveillance programme.
3. Discuss in detail the objectives, functions and outcomes of HIV and AIDS control programme.
4. Discuss about National health programme. Discuss in detail about objectives, functioning and outcome of National Mental Health programme.

SECTION-C

5. Discuss about social causes of diseases and social problems of sick.
6. Discuss and explain in detail about National Malaria Prevention Programme.
7. Describe the general principles of prevention and control of Cholera and S.A.R.s.
8. Describe the general principles of prevention and control of Diabetes Mellitus.
9. Discuss about salient features and significance of improvement in rural sanitation programme.
10. Discuss about universal immunization programme.
11. Discuss about National programme for the healthcare for the elderly.
12. Discuss about the role of WHO in Indian National programmes.
13. Discuss about National urban health mission.

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Total No. of Questions : 13

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B. Pharmacy (Sem.-8)

PHARMACOVIGILANCE

Subject Code : BP805ET

M.Code : 79768

Date of Examination : 08-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a) Enlist various types of adverse drug reactions.
- b) Enlist methods of causality assessment of ADR.
- c) Define pre- and post- marketing surveillance.
- d) Define the term 'daily defined doses'.
- e) Define periodic safety update report.
- f) Define Pharmacovigilance and Medicovigilance.
- g) Define contract research organization.
- h) Define and differentiate between pharmacogenetics and pharmacogenomics.
- i) Enlist various primary, secondary and tertiary sources of drug information.
- j) Define drug safety crisis.

SECTION-B

2. Describe the role of WHO in international drug monitoring programme.
3. Describe the methods for drug safety evaluation in paediatric and geriatric patients.
4. Describe the methods of generating safety data during pre-clinical and clinical phases of drug evaluation.

SECTION-C

5. Describe the role of CIOMS working group in pharmacovigilance programme.
6. Describe the establishment and operation of drug safety department in industry.
7. Describe the ICH guidelines for expedited reporting system.
8. Briefly describe anatomical, therapeutic and chemical classification of drugs.
9. Describe the various methods of causality assessment of ADR.
10. Describe the methods of active surveillance.
11. Describe the need and approach of effective communication in drug safety management.
12. Describe MedDRA hierarchy system.
13. Classify various adverse effects following immunization.

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Total No. of Pages : 02

Total No. of Questions : 13

PHARMACEUTICAL PRODUCT DEVELOPMENT

B. Pharmacy (Sem.-8)
Subject Code : BP813ET

M. Code : 79776

Date of Examination : 04-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly:

- a) Pharmaceutical aids
- b) Examples of non-ionic surfactants.
- c) CPP
- d) Factorial designs
- e) Role of directly compressible vehicles.
- f) Functions of coating materials.
- g) Statistical software tools.
- h) Packaging material qualification.
- i) Child resistant packaging.
- j) NDDS

SECTION-B

2. Explain the role of cyclodextrins in drug formulation? What are their key applications in enhancing drug solubility and bioavailability?
3. What are optimization techniques, and how are they employed in pharmaceutical product development to improve processes or formulations?
4. Highlight the significance of preformulation process in understanding a drug's physicochemical properties and potential challenges in formulation.

SECTION-C

5. Explain the importance of in-process quality control testing during pharmaceutical manufacturing.
6. What are the pharmaceutical applications of sorbitol and how do they contribute to the formulation's physical and chemical stability?
7. What are benefits of using a full factorial design compared to a fractional factorial design in pharmaceutical research?
8. What are challenges in selecting excipients for specialized drug delivery systems?
9. Describe the key excipients commonly used in tablet formulations, and how do they contribute to the tablet's properties?
10. Explain the key regulatory considerations when selecting packaging materials for pharmaceutical products.
11. Describe some common Polyethylene Glycols (PEGs) used in pharmaceutical products, and how do they function as solubilizing agents?
12. Why is stability assessment crucial in pharmaceutical product development?
13. What are emulsifying agents, and how do they facilitate the formation and stability of emulsions in pharmaceutical products?

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Total No. of Pages : 03

Total No. of Questions : 13

B.Pharmacy (Sem.-8)

BIOSTATISTICS AND RESEARCH METHODOLOGY

Subject Code : BP-801T

M.Code : 79764

Date of Examination : 02-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- What do you mean by Biostatistics?
- What are ideal characteristics of Measures of Dispersion?
- Define Null Hypothesis and Alternate Hypothesis.
- What is Probability?
- Distinguish between Parametric and Non-parametric tests.
- What is the need for Design of Experiments?
- Draw a pie-chart to represent Percentage of herbal drug sector in different countries given in the following table:

Country	India	China	Germany	Italy	The Netherlands	Japan	America	UK	Total
Percentage of herbal drug sector	13	18	24	11	5	14	10	5	100

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- h) What are the benefits of MINITAB?
- i) What is Factorial Design?
- j) What is a Cohort Study? Give example.

SECTION-B

2. A geneticist recorded the following measurements taken on two week old mice of a particular strain. Is there evidence that the variance among mice in different litters is larger than one would expect on the basis of the variability found within each litter?

		Liters						
I	II	III	IV	V	VI	VII	VIII	
19.49	22.94	23.06	15.90	16.72	20.60	21.52	22.15	
20.62	22.15	20.05	21.48	19.22	19.19	20.37	20.37	
19.51	19.16	21.47	22.48	26.62	21.15	21.93	21.93	
18.09	20.98	14.90	18.79	20.74	14.88	20.14	20.14	
22.75	23.13	19.12	19.70	21.82	19.79	22.28	22.28	

3. a) The following table shows the age distribution of cases of a certain disease reported during a year in a particular state.

Age	Number of cases
5-14	5
15-24	10
25-34	20
35-44	22
45-54	13
55-64	5

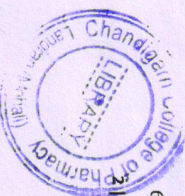
Compute the Mean, Median and Standard Deviation.

- b) Discuss the method of Least Squares for Curve Fitting.

SECTION-C

5. Write a detailed note on 'Multiple Correlation Analysis'.
6. Describe different methods of Sampling.

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7. The systolic blood pressures of 12 women between the ages of 20 and 35 were 5 measured before and after administration of a newly developed oral contraceptive. Compute for statistical significance.

Subject	Systolic Blood Pressure (mmHg)	
	Before	After
1	122	127
2	126	128
3	132	140
4	120	119
5	142	145
6	130	130
7	142	148
8	137	135
9	128	129
10	132	137
11	128	128
12	129	133

8. Write a note on 'Kruskal Wallis test'.
9. Define the term Plagiarism. Why do we need to check Plagiarism?
10. Explain Confounding System for two level factorials.
11. Give key features and applications of MS-Excel.
12. Write a note on 'Central Composite Design'.
13. What are Experimental Design Techniques? Write in brief about its types.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-8)
PHARMA MARKETING MANAGEMENT

Subject Code : BP803ET

M.Code. : 79766

Date of Examination : 07-01-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly:

- a) What are me too products?
- b) What are the advantages of wholesalers?
- c) Differentiate between marketing and selling.
- d) How C & F agents are different from wholesaler?
- e) What are the advantages of chain pharmacies?
- f) What is horizontal marketing?
- g) What is NPPA?
- h) Write any two services provided by retail pharmacy.
- i) What do you mean by Global marketing?
- j) Write a short note about current scenario of Indian Pharmaceutical market.

SECTION-B

2. What do you mean by PLC? Explain in details the life cycle of a Pharmaceutical product.
3. What is market segmentation? Explain the different ways of segmenting the pharmaceutical market with examples.
4. Define communication and explain the process of communication.

SECTION-C

5. Explain the different promotion techniques for OTC products.
6. Discuss the methods of non-price competition.
7. Mention the advantages and disadvantages of a wholesaler in distribution of pharmaceutical product.
8. Explain the factors that are considered in selection of PSR.
9. Discuss about vertical Marketing.
10. Discuss the significance of medical Exhibition.
11. Discuss the Global Marketing of Pharmaceutical Products.
12. What is the role of market research in marketing?
13. How do socio psychological characteristics of consumer's influence market segmentation?

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DEL-2024