Roll No. | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–1)

PHARMACEUTICAL INORGANIC CHEMISTRY

Subject Code : BP-104T

M.Code : 74647

Date of Examination : 20-06-2024

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. Write in brief about the following :

   a) Define the term chemical purity.

   b) Define buffer and buffer capacity.

   c) Define isotonic solution.

   d) Why Citric Acid is used in limit test of Iron?

   e) What are dentrifrices?

   f) Define the function of emetics.

   g) What are ideal properties of antacids?

   h) Define the medicinal role of charcoal.

   i) What are acidifires?

   j) What is Oral Rehydration Salt?

SECTION-B

2. Write detailed note on sources and types of pharmaceutical impurities.
3. Discuss mechanism, classification of antimicrobials. Add note on Kaolin and Bentonite.
4. Write in detail limit test for chloride and sulphate.

SECTION-C

5. Write in detail about pharmaceutical applications of radiopharmaceuticals.
6. Classify cathartics. Write properties and medicinal uses of sodium orthophosphate.
7. Define and classify antacids. Describe combination of antacids.
8. Describe about role of fluorides in the treatment of dental products.
9. Discuss electrolyte used in replacement therapy.
10. Discuss various inorganic compounds as heamatinics.
11. What are salient features of Astringents? Write medicinal uses of Zinc sulphate.
12. Define and classify antidotes. What is potash alum chemically?
13. Define the terms radioisotopes, half-life and radioactivity using suitable example.

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Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–1)

PHARMACEUTICS-I THEORY

Subject Code : BP-103T

M.Code : 74646

Date of Examination : 18-06-2024

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 :

   i. What is the formula for calculating pediatric dose based on body weight?

   ii. Differentiate between deliquescent and hygroscopic substances.

   iii. What are the meanings of latin abbreviations s.o.s. and b.i.d.?

   iv. What is a gelling agent? Give examples.

   v. Define proof spirit.

   vi. What are IP, BP and USP?

   vii. What is meant by hypertonic and hypotonic solution?

   viii. What are anti-oxidants? Give examples of oil and water-soluble anti-oxidants.

   ix. What is a gargle? Mention the ingredients of gargles.

   x. Give two examples of melting suppository bases.

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SECTION-B

2. Classify suspensions. Describe various methods for preparation of suspensions giving one example in each class.

3. Define Incompatibility. Explain Physical Incompatibility in details giving suitable examples.

4. **The following prescription has to be dispensed as eye drop :**
   Dexamethasone sodium phosphate - 0.1%; Sterile Water qs - 30 ml.
   Calculate the quantity of sodium chloride needed to be added to make the solution isotonic with lacrimal fluid. The 'D' value of Dexamethasone Sodium Phosphate is 0.05° / 0.5%.

SECTION-C

5. Distinguish between flocculated and deflocculated suspensions. With the help of an illustration describe a method to induce flocculation in a suspension.

6. What are elixirs? Enumerate their major advantages over syrups. Write briefly about the formulation of elixirs.

7. What are the different types of ointment bases? Write briefly about Absorption ointment bases.

8. What are the major causes which lead to cracking problem in emulsions? Give examples.

9. Write a note on clear gels.

10. Enumerate the steps involved during handling of prescriptions.

11. What are enemas? Enumerate different types of enemas and mention their ingredients and purposes.

12. What are throat paints? Mention ingredients of throat paints along with their role.

13. Define liniments and highlight the ingredients of liniments.

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Roll No. | | | | | | | | | | Total No. of Pages :07

Total No. of Questions : 13

B.Pharmacy (Sem.-1)

HUMAN ANATOMY AND PHYSIOLOGY-I

Subject Code : BP/101T

M.Code : 74644

Date of Examination : 12-06-2024

Time : 3 Hrs. Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TWENTY questions carrying ONE mark 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. The extracellular fluid compartment consists of which of the following?

i) Vascular and transcellular

ii) Interstitial, vascular and connective tissue fluid

iii) Intra-cellular and transcellular

iv) Trans-cellular, intra-cellular and connective tissue fluid.

b. What is the movement of water molecules across a plasma membrane from the side where the solution concentration is more dilute to the side where the solution is more concentrated called?

i) Osmosis

ii) reverse osmosis

iii) diffusion

iv) hydration

c. Diffusion is the term given to the process where :

i) molecules move along their concentration gradient from high concentration to low concentration.

ii) water moves along its concentration gradient from low concentration to high concentration.

iii) ATP is used to move ions along their concentration gradient.

iv) A membrane protein, by changing shape after binding to a molecule, moves the molecule across the plasma membrane.

d. A hypertonic solution is one which :

i) has an osmotic pressure that is different to that inside red blood cells.

ii) has an osmolarity less than that of red blood cells.

iii) causes no net movement of water through the membrane of red blood cells.

iv) has an osmolarity greater than that of red blood cells.

e. If a patient was suffering from "acidosis", what would this mean?

i) Blood pH is not sufficiently alkaline.

ii) Blood pH is acidic.

iii) There is too little hydronium ion in the plasma.

iv) Blood pH is too acidic.

f. To which of the following class of biological compounds do all enzymes belong?

i) Hormones

ii) Proteins

iii) Carbohydrates

iv) Lipids.

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g. Which glands secrete "oil" into a hair follicle?

i) Apocrine

ii) Eccrine

iii) ceruminous

iv) sebaceous.

h. The human body's ability to maintain a relatively constant internal temperature is an example of what?

i) Respiratory heat loss

ii) Homeostasis

iii) Vasodilation and evaporative heat loss

iv) Positive feedback.

i. Which bone of the head has a synovial joint?

i) The sphenoid

ii) The maxilla

iii) The mandible

iv) The hyoid.

j. Which of the following is the smallest structure within a muscle fibre?

i) Myosin

ii) Myofilament

iii) Myofibril

iv Sarcomere.

k. What are red blood cells also known as?

i) Erythrocytes

ii) Thrombocytes

iii) Monocytes

iv) Eosinophils.

l. What name is used for a nerve cell?

i) Neuron

ii) Neuroglia

iii) Ganglion

iv) Astrocyte

m. What part of the nervous system prepares the body for action during extreme situations?

i) The limbic system

ii) The sympathetic division

iii) The efferent system

iv) The parasympathetic division

n. What is the range of frequencies that the human ear is most sensitive to?

i) 50Hz to 500Hz

ii) 12,000 Hz to 20,000 JHz

iii) 500Hz to 6000Hz

iv) 20 Hz to 20,000 Hz.

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o. What is the study of how body parts function called?

i) Histology

ii) Physiology

iii) Homeostasis

iv) Metabolism.

p. In which part of a cell does the process of making ATP from oxygen and glucose take place?

i) Lysosomes

ii) Ribosomes

iii) Mitochondria

iv) Golgi apparatus.

q. Which of the following is the smallest living structural unit of the body?

i) Atom

ii) Molecule

iii) Organelle

iv) Cell.

r. Which layer of the skin is the most superficial?

i) Epidermis

ii) Dermis

iii) Papillary dermal layer

iv) Stratum germinativum.

s. Number of facial bones :

i) 9

ii) 5

iii) 12

iv) 14.

t. Normal blood pressure of human body

i) 70/130 mmHg

ii) 80/120 mmHg

iii) 90/110 mmHg

iv) 60/150 mmHg.

SECTION-B

2. Draw a well labelled diagram of eye and describe its functions.

3. Define cell and tissues. Classify different types of tissues. Write structure and functions of epithelial tissues.

4. What is blood? Write different types of blood cells. Explain any two blood disorder.

SECTION-C

5. Write a short note on cellular signalling.

6. Explain in detail nerve action potential.

7. Define coagulation. Explain detailed coagulation mechanism.

8. Write the significance of Reticulo endothelial system.

9. Explain functions of the lymphatic system.

10. Write the differences between sympathetic and parasympathetic nervous system.

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Roll No. [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–1)

PHARMACEUTICAL ANALYSIS-I

Subject Code : BP-102T

M.Code : 74645

Date of Examination : 14-06-2024

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 :**

   a) An aqueous solution of *NaCl is neutral but that of* CH_3COONa is alkaline. Why?

   b) Starch cannot be *used as indicator in* KIO_3 titrations. Why?

   c) What type of errors is associated with precision of an experiment? How can these be minimised?

   d) Define solubility product.

   e) Why pH control is important in complexometric titrations?

   f) What is the precise role of mercuric acetate in non-aqueous estimation of ephedrine HCl?

   g) What is the difference between ignition and drying in gravimetric analysis?

   h) Name the reversible indicators used in potassium bromate titrations.

   i) Give balance chemical equations for reaction between $KMnO_4$ and Oxalic acid.

   j) What do you understand by diffusion current?

SECTION-B

2. Plot the neutralization curve by calculating pH at 0, 50, 90, 99, 99.9,100, 100.1,101 and 110 % neutralization reaction between 0.1 M CH_3COOH and 0.1 MNaOH. (pKa of $CH_3COOH = 4.75$) (10)

3. What is the principle of complexometric titrations? Describe its different types with examples. Give the chemical equations involved, method and general calculation for estimation of calcium gluconate. (2+4+4)

4. Describe the concept of oxidation and reduction in pharmaceutical analysis with examples. How do you calculate equivalent weight of an oxidant and a reductant? Write a detailed account on iodimetric and iodometric titrations with emphasis on their principle, applications and limitations. (2+2+6)

SECTION-C

5. Write a detailed account on conductometric titrations.

6. Give the principle, balanced chemical equations and general calculations for the determination of barium as barium sulfate.

7. Describe in detail the Mohr's method.

8. Define the terms primary and secondary standards. Enumerate their characteristic features. Give examples in neutralization, non-aqueous, redox and precipitation titrations.

9. What is the principle of polarographic method of analysis? Describe the construction and working of rotating platinum electrode.

10. Define the terms Colour change interval of an indicator. How is it determined?

11. Describe principle and different methods of end point detection in potentiometric titrations.

12. Give principle, chemical equations, method and general calculations for estimation of sodium benzoate by non-aqueous titrations.

13. How will you prepare a 100 ml solution 0.1 M solution of cerric ammonium sulfate? Describe its methods of standardization emphasizing chemical equations and calculations.

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Total No. of Questions : 13

B.Pharmacy (Sem.–1)

PHARMACEUTICS-I THEORY

Subject Code : BP-103T

M.Code : 74646

Date of Examination : 18-06-2024

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 :

   i. What is the formula for calculating pediatric dose based on body weight?

   ii. Differentiate between deliquescent and hygroscopic substances.

   iii. What are the meanings of latin abbreviations s.o.s. and b.i.d.?

   iv. What is a gelling agent? Give examples.

   v. Define proof spirit.

   vi. What are IP, BP and USP?

   vii. What is meant by hypertonic and hypotonic solution?

   viii. What are anti-oxidants? Give examples of oil and water-soluble anti-oxidants.

   ix. What is a gargle? Mention the ingredients of gargles.

   x. Give two examples of melting suppository bases.

SECTION-B

2. Classify suspensions. Describe various methods for preparation of suspensions giving one example in each class.

3. Define Incompatibility. Explain Physical Incompatibility in details giving suitable examples.

4. **The following prescription has to be dispensed as eye drop :**

   Dexamethasone sodium phosphate - 0.1%; Sterile Water qs - 30 ml.

   Calculate the quantity of sodium chloride needed to be added to make the solution isotonic with lacrimal fluid. The 'D' value of Dexamethasone Sodium Phosphate is 0.05° / 0.5%.

SECTION-C

5. Distinguish between flocculated and deflocculated suspensions. With the help of an illustration describe a method to induce flocculation in a suspension.

6. What are elixirs? Enumerate their major advantages over syrups. Write briefly about the formulation of elixirs.

7. What are the different types of ointment bases? Write briefly about Absorption ointment bases.

8. What are the major causes which lead to cracking problem in emulsions? Give examples.

9. Write a note on clear gels.

10. Enumerate the steps involved during handling of prescriptions.

11. What are enemas? Enumerate different types of enemas and mention their ingredients and purposes.

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–1)

PHARMACEUTICAL INORGANIC CHEMISTRY

Subject Code : BP-104T

M.Code : 74647

Date of Examination : 20-06-2024

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. **Write in brief about the following :**

   a) Define the term chemical purity.

   b) Define buffer and buffer capacity.

   c) Define isotonic solution.

   d) Why Citric Acid is used in limit test of Iron?

   e) What are dentrifrices?

   f) Define the function of emetics.

   g) What are ideal properties of antacids?

   h) Define the medicinal role of charcoal.

   i) What are acidifires?

   j) What is Oral Rehydration Salt?

SECTION-B

2. Write detailed note on sources and types of pharmaceutical impurities.

3. Discuss mechanism, classification of antimicrobials. Add note on Kaolin and Bentonite.

4. Write in detail limit test for chloride and sulphate.

SECTION-C

5. Write in detail about pharmaceutical applications of radiopharmaceuticals.

6. Classify cathartics. Write properties and medicinal uses of sodium orthophosphate.

7. Define and classify antacids. Describe combination of antacids.

8. Describe about role of fluorides in the treatment of dental products.

9. Discuss electrolyte used in replacement therapy.

10. Discuss various inorganic compounds as heamatinics.

11. What are salient features of Astringents? Write medicinal uses of Zinc sulphate.

12. Define and classify antidotes. What is potash alum chemically?

13. Define the terms radioisotopes, half-life and radioactivity using suitable example.

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June-2024

Roll No. | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-2)

PHARMACEUTICAL ORGANIC CHEMISTRY-I

Subject Code : BP-202T

M.Code : 74968

Date of Examination : 11-05-2024

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. **Briefly write about the following :**

   a) How many isomers are possible for $C_4H_9C_{10}$? Give their IUPAC names.

   b) Define inductive effect. Give suitable example.

   c) What is Markownikoff orientation?

   d) Comment upon the uses of cetosteryl alcohol.

   e) Draw the structure of 2-MethyI-N,N-diethyl butanamine and cylcobutane carboxylic acid.

   f) Define tautomerism. Give example.

   g) Give chemical test to distinguish between 1°, 2° and 3° alcohols.

   h) Give the structure and uses of Amphetamine.

   i) Write any two methods of preparation of alkyl chlorides.

   j) Write down the structure of any two medicinally important alcohols.

SECTION-B

2. Comment upon following reactions. Give their mechanism and applications if any :

   a) Cannizaro reaction

   b) Benzoin condensation.

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

4. Account for the following :

   a) Electrophillic addition reactions of conjugated dienes.

   b) Halogenation of alkanes.

SECTION-C

5. Explain the effect of substituent on acidity of carboxylic acids.
6. Discuss Kharasch effect taking suitable examples.
7. Write about the effect of base and solvent on El and E2 reactions.
8. What is structural isomerism? Give suitable examples.
9. What are various types of amines? Give examples. How can we distinguish them?
10. Describe various methods of preparation of carbonyl compounds.
11. Give structure and uses of Cetosteryl alcohol and Cinnamaldehyde.
12. Give chemical tests to identify the presence, of alcohols and aldehydes.
13. Comment upon hybridisation in alkanes

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June-2024

Roll No. ☐☐☐

Total No. of Qu

Time : 3 Hrs.

INSTRUCTIONS

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Total No. of Pages : 02

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B.Pharmacy (Sem.-2)
BIOCHEMISTRY
Subject Code : BP/203T
M.Code : 74969
Date of Examination : 15-05-2024

Max. Marks : 75

ANDIDATES :

OMPULSORY consisting of TEN questions carrying TWO marks

ains THREE questions carrying TEN marks each and student ny TWO questions.

ains NINE questions carrying FIVE marks each and student has EVEN questions.

SECTION-A

owing :

opolysaccharides with examples.

es of pyrimidine nitrogenous bases present in nucleic acid.

example of exergonic reaction.

gen storage disease?

hemical importance of glycogenesis?

ate level phosphorylation with examples.

location of ETC?

es of disorders of lipid metabolism.

ic disorders of aromatic amino acids.

tion codon?

SECTION-B

2. Describe reactions of glycolysis along with its energetics and biochemical significance.
3. i) Describe reactions of β-oxidation.
   ii) Discuss various steps which are involved in formation of ketone bodies.
4. Describe reactions of *de novo* biosynthesis of pyrimidine nucleotides.

SECTION-C

5. Briefly describe various levels of protein structures.
6. Draw structure and describe biological role of cAMP.
7. Describe hormonal regulation of blood glucose.
8. Describe mechanism and biochemical importance of oxidative phosphorylation.
9. Describe biosynthesis of dopamine and its biochemical significance.
10. What are transamination and deamination reactions?
11. Discuss structure and functions of tRNA.
12. Give IUB classification of enzymes with examples of each class.
13. Describe structures and biochemical functions of coenzymes derived from Vitamin B6.

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June-2024

Roll No. ☐☐☐☐☐☐☐☐☐☐

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharmacy (Sem.-2)

BIOCHEMISTRY

Subject Code : BP/203T

M.Code : 74969

Date of Examination : 15-05-2024

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. **Attempt the following :**

   i) Define heteropolysaccharides with examples.

   ii) Give structures of pyrimidine nitrogenous bases present in nucleic acid.

   iii) Give any one example of exergonic reaction.

   iv) What is glycogen storage disease?

   v) What is biochemical importance of glycogenesis?

   vi) Define substrate level phosphorylation with examples.

   vii) What is tissue location of ETC?

   viii) Give, examples of disorders of lipid metabolism.

   ix) Name metabolic disorders of aromatic amino acids.

   x) What is initiation codon?

SECTION-B

2. Describe reactions of glycolysis along with its energetics and biochemical significance.
3. i) Describe reactions of β-oxidation.

   ii) Discuss various steps which are involved in formation of ketone bodies.
4. Describe reactions of *de novo* biosynthesis of pyrimidine nucleotides.

SECTION-C

5. Briefly describe various levels of protein structures.
6. Draw structure and describe biological role of cAMP.
7. Describe hormonal regulation of blood glucose.
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9. Describe biosynthesis of dopamine and its biochemical significance.
10. What are transamination and deamination reactions?
11. Discuss structure and functions of tRNA.
12. Give IUB classification of enzymes with examples of each class.
13. Describe structures and biochemical functions of coenzymes derived from Vitamin B6.

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June-2024

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Total No. of Questions : 13

Total No. of Pages : 02

B.Pharmacy (Sem.-2)

PATHOPHYSIOLOGY

Subject Code : BP/204T

M.Code : 74970

Date of Examination : 18-05-2024

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 metabolic acidosis? Give suitable examples.

b) What is chronic inflammation?

c) Define anemia. What is megaloblastic anemia?

d) What is angina? Indicate various types of angina.

e) What is Sarcoma and Carcinoma?

f) What is stroke? Highlight sign and symptoms of stroke.

g) What is Grand Mai and Petitmal Epilepsy?

h) Define Alzheimer's disease and indicate two pathological hallmark of AD.

i) What is tuberculosis?

j) What is AIDS?

SECTION-B

2. Indicate various types of cell deaths and discuss critically about programmed cell death.

3. What is wound healing process? Describe various steps involved in growth of tissue during wound healing.

4. What is depression? Indicate various types of depression and discuss pathophysiology of depression.

SECTION-C

5. Write a note on inflammatory mediators.

6. What are free radicals? How are these formed? Explain the role of free radicals in cell injury.

7. What is diabetes mellitus? Indicate various types of diabetes mellitus and describe pathophysiology of TYPE-1 DM.

8. Add note on pathophysiology of congestive heart failure.

9. What is Parkinsonism? Add a short note on pathophysiology of Parkinsonism.

10. Write a brief note on inflammatory bowel diseases.

11. Explain key differences between Benign and Malignant tumor.

12. What are common joint disorders, discuss pathophysiology of Gout?

13. Add a note on pathophysiology of Asthma.

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June-2024

Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-2)

HUMAN ANATOMY AND PHYSIOLOGY-II

Subject Code BP-201T

M.Code : 74967

Date of Examination : 08-05-2024

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 GIT? Enlist various organs of GIT.

   b) What are receptors? Give examples.

   c) What are posterior pituitary hormones?

   d) What is ATP? Highlight role of ATP.

   e) Define Tidal volume and Residual volume.

   f) Highlight various functions of hypothalamus.

   g) What is glomerular filtration rate?

   h) Define transcription and translation.

   i) What is gametogenesis?

   j) What are sex hormones? Give examples.

SECTION-B

2. What are accessory organs of digestive system? Discuss in detail about structure and function of liver.

3. Discuss critically about physiology of thyroid hormone.

4. Define respiration, enlist organs of respiratory system and discuss mechanism and regulation of respiration in detail.

SECTION-C

5. Define reflex action and describe physiology of reflex action.

6. Draw a neat and labelled diagram of nephron and highlight functions of kidneys.

7. Write a note on small intestine and its role in absorption of nutrients.

8. Write a note on basal metabolic rate; indicate significance and factors affecting BMR.

9. Discuss the role of kidneys in acid-base balance.

10. Write a note on brain stem.

11. Write a brief note on spermatogenesis and its regulation.

12. Write a brief note on protein synthesis.

13. Define genetics and add a note on chromosomes.

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June-2024

Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–3)

PHARMACEUTICAL ORGANIC CHEMISTRY-II

Subject Code : BP/301T

M.Code : 75105

Date of Examination : 11-06-2024

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. Attempt the following :

a) Give sp^2 hybridized orbital of benzene.

b) Give structure and uses of DDT.

c) Why picric acid is more acidic than phenol?

d) Electrophilic substitution in aniline occurs faster than in benzene itself. Why?

e) How to differentiate phenol from acid?

f) Why benzoic acid is stronger than acetic acid?

g) Define acid value.

h) What are oils?

i) Give orbital picture of naphthalene.

j) Give Friedel Craft reaction of benzyl chloride for the synthesis of anthracene.

SECTION-B

2. Give the analytical and synthetic evidences in support of structure of benzene.

3. Explain important reactions of benzoic acid.

4. Discuss various steps of Haworth synthesis of naphthalene. Describe its electrophilic substitution reaction.

SECTION-C

5. Explain resonance stability in benzene.

6. Compare Friedel Craft alkylation and acylation.

7. Give qualitative tests for phenol.

8. What is the principle and significance of determination of acid value?

9. Give orbital picture of phenanthrene along with resonance structure.

10. Explain electrophilic substitution reactions of benzene.

11. What is Bacyer's strain theory? Comment on its limitations.

12. Write a note on saponification and rancidity of oils.

13. Explain the acidity in picric acid on the basis of resonance and inductive effect.

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Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions :13

B.Pharmacy. (Sem.–3)

PHARMACEUTICAL ORGANIC CHEMISTRY-II

Subject Code :BP301T

M.Code : 93323

Date of Examination : 11-06-2024

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 :

   (i) Give structure and uses of saccharine.

   (ii) What are the limitations of Friedel Craft alkylation?

   (iii) What is the effect of NO_2 group on acidity of hydroxyl group in picric acid?

   (iv) Why nitro group deactivates benzene for electrophilic substitution?

   (v) What is ferric chloride test for phenol?

   (vi) Why p-nitro benzoic acid is weaker than o-nitrobenzoic acid.

   (vii) Define saponification value.

   (viii) Differentiate between oils and fats.

   (ix) Give Friedel Craft acylation of benzene by succinic anhydride in Howarth synthesis of naphthalene.

   (x) Draw five resonance forms of phenanthrene.

SECTION-B

2. Describe the facts that support the kekule formula of benzene.
3. Discuss basicity of aniline and effect of substituents on basicity.
4. What are the limitations of theory? Give detailed account of conformational analysis of cyclohexane.

SECTION-C

5. Explain the ortho, meta and para directing effect of substituents in mono substituted benzene.
6. Why Friedel Craft acylation preferred over Friedel Craft alkylation in alkylation of benzene?
7. Discuss the effect of substituents on acidity of benzoic acid.
8. What is the principle and significance of determination of Reichert Meissl value?
9. Explain electrophilic substitution reactions of naphthalene.
10. Give orbital picture of anthracene along with resonance structure.
11. Discuss activation and deactivation of benzene ring in mono substituted derivatives for electrophilic substitution.
12. Write a note on drying of oils.
13. Give synthesis of phenanthrene.

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June-2024

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 : 13-06-2024

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) Define latent heat of vaporization.

   (b) Define buffer capacity.

   (c) What is Steady state of diffusion?

   (d) Define saturated solution.

   (e) Define solubility parameter.

   (f) Define tie line.

   (g) Define chelates.

   (h) Define dielectric constant.

   (i) Define coordination number.

   (j) What are buffered isotonic solutions?

SECTION-B

2. Define Raoult's law. With help of a neat labelled diagram explain positive and negative deviation from Raoult's law.

3. Define distribution law. Explain the effect of dissociation and association of solute on distribution coefficient.

4. Define refractive index. How is it determined experimentally?

SECTION-C

5. Describe Du Nouytensiometer method of determination of interfacial tension.

6. Explain Fick's law of diffusion.

7. What is specific refraction and molar refraction?

8. Explain two methods used for the adjustment of isotonicity.

9. Write a note on polymorphism.

10. Explain the factors which influence solubility of gas in liquids.

11. Write a note on aerosols.

12. What are liquid crystals? How are they formed?

13. What is the role of dissociation constant in absorption of drugs?

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Roll No. | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–3)

PHARMACEUTICAL MICROBIOLOGY

Subject Code : BP/303T

M.Code : 75107

Date of Examinaiton : 15-06-2024

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 :**

   (i) Give two examples of preservatives.

   (ii) What are Eukaryotes?

   (iii) What is meant by log-phase in bacterial growth curve?

   (iv) Mention the conditions required for growing anaerobic bacteria.

   (v) What is meant by 'class 10' room?

   (vi) Give examples of two materials sterilized by gaseous sterilization.

   (vii) What are transformed cell cultures? Give two examples and their uses.

   (viii) Mention the key features of Fungi.

   (ix) What is meant by 'laminar flow'?

   (x) Mycobacteria and many Nocardia sp. can be identified by which stain?

SECTION-B

2. Enlist different types of microbial contaminants and the factors affecting preservation of pharmaceutical products. Briefly explain the methods of assessing preservation.

3. Write a note on disinfectants and discuss their mechanisms of action. Describe the tests used for evaluating them.

4. Classify fungi. Discuss their reproduction, and cultivation. Give examples of disease-causing fungi.

SECTION-C

5. Write a note on standardization of vitamins.

6. Outline the method used for Phenol Coefficient Test.

7. Define 'D' and 'Z' value and write a note on their applications.

8. What is the mechanism of sterilization by chemical? Name the chemicals used for this purpose. Mention the limitations of this process.

9. Discuss the requirements for cultivating fungi.

10. Write a note on the sterility testing of LVP products.

11. Enumerate the sources of contamination in an aseptic room and the precautions to be taken to prevent contamination.

12. Enumerate preservation of pharmaceutical products.

13. What is moist heat sterilization? Mention the applications and disadvantages of this process.

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Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.–3)

PHARMACEUTICAL ENGINEERING

Subject Code : BP-304T

M.Code : 75108

Date of Examination : 19-06-2024

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 :**

   i. Material handling

   ii. Steel as a material of plant construction

   iii. Fourier's Law

   iv. Elutriation *vs* Sedimentation

   v. Mixing index

   vi. Reynold's number

   vii. Attrition as a method of size reduction

   viii. Corrosion

   ix. Moisture content

   x. Centrifugation.

SECTION-B

2. Write an explanatory note on principle and working of perforated and nonperforated centrifuge. Describe its applications.

3. Discuss in detail various types of corrosion and their methods of prevention.

4. Describe the mechanisms and laws governing size reduction. Write a note on cyclone separator.

SECTION-C

5. Write a note on Bernoulli's theorem.

6. Describe the construction of ball mill.

7. Write a note on tubular heaters.

8. Describe the construction and working of rotameter.

9. Explain the principle behind solid-liquid mixing.

10. Write a note on filter leaf.

11. Describe the factors affecting evaporation.

12. Describe the principle behind steam distillation.

13. What do you mean by sieve number? Describe the various standards for sieves.

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Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem-3)

PHARMACEUTICAL ENGINEERING

Subject Code : BP-304T

M.Code : 93326

Date of Examination : 19-06-2024

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 are the applications of Bernoulli's theorem?

   b. Write demerits of elutriation tank.

   c. What do you mean by heat exchangers?

   d. Define specific heat and mention its units.

   e. Mention filter aids.

   f. What is Rittingers Rule?

   g. Differentiate between conduction and convection.

   h. Mention the types of glass used for packaging liquids.

   i. Enumerate the causes of corrosion.

   j. Enumerate the factors that influence rate of filtration.

SECTION-B

2. Enumerate the factors influencing energy loss during flow of fluids. Explain the remedies for them.

3. What is Lyophilization? Discuss the factors influencing this process and mention the applications of this process.

4. Explain the mechanisms of size separation. Write a note on Bag Filters and their applications.

SECTION-C

5. Discuss the operation of a rotary drum filter.

6. What is a climbing film evaporator? Describe its operation and advantages.

7. What is a twin shell blender? Describe its operation and mention its applications.

8. Explain the mechanisms of heat transfer. Discuss the operation of heat exchangers.

9. Illustrate a fluidized bed dryer and explain its operation. Mention its applications in pharmaceutical industry.

10. Discuss the operation of a rotary drum filter.

11. Write a note on non-perforated basket centrifuge and its applications.

12. Explain the mechanisms of heat transfer. Discuss the operation of heat exchangers.

13. Comment on nonferrous materials used in pharmaceutical plants.

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Total No. of Questions : 13

Total No. of Pages : 02

B.Pharma (Sem.-4)

MEDICINAL CHEMISTRY-I

Subject Code : BP-402T

M.Code : 75844

Date of Examination : 13-05-2024

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 the role of partition coefficient on biological activity.

(b) Write any two drug structures of alpha adrenergic blockers.

(c) Write chemical synthesis of Carbamazepine.

(d) Give chemical structure and uses of Ephedrine.

(e) What are cholinergic receptors? Give examples.

(f) Give the structure and specific medicinal use of Phenobarbitone.

(g) What is dissociative anaesthetic? Give one example.

(h) What are the medicinal uses of Phenylbutazone and Atropine?

(i) Give structures of Morphine and Codein.

(j) Write structure and specific use of Clonazepam.

SECTION-B

2. Describe medicinal chemistry of benzodiazepines as sedative hypnotic's drugs.

3. Discuss SAR of sympathomimetics agents. Write chemical synthesis of Salbutamol.

4. Write in detail halogenated hydrocarbons as inhalational general anaesthetics.

SECTION-C

5. Give an account on SAR of phenothiazines as antipsychotics.

6. Write name and chemical structure of ultra short acting barbiturates.

7. Write a brief note on Haloperidol and Resperidone.

8. Discuss in detail about Narcotic antagonists.

9. Write detailed note on hydantoin as anticonvulsants.

10. Write down structures with IUPAC names and uses of two selective beta blockers.

11. Comment on the Indomethacin and Sulindac as anti-inflammatory drug.

12. Comment upon the bioisosterism and optical isomerism in relation to biological action.

13. Write a short note on Phase II metabolic reactions.

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Total No. of Questions : 13

Total No. of Pages : 02

B.Pharma (Sem.-4)

PHARMACOGNOSY & PHYTOCHEMISTRY-I

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 21-05-2024

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 difference between Pharmacognosy and Botany?

   b. What are crude drugs classified on the basis of morphology?

   c. What are primary and secondary metabolites?

   d. What are leaf constants?

   e. What are Flavonoids?

   f. What are Tannins?

   g. You are given plant sample containing cardiac glycosides. How will you confirm the presence of cardiac glycosides in the sample?

   h. What is Hybridization?

   i. Give the basic principle of Unani medicine.

   j. How can we protect and conserve medicinal plants?

SECTION-B

2. What are the different methods by which you can determine quality and adulteration of drugs of natural origin?

3. What is the role of Pharmacognosy in Allopathic and traditional medicine?

4. What is plant tissue culture? What are the requirements for successful PTC? What are the applications of PTC in pharmacognosy?

SECTION-C

5. Describe the impact of various factors on the quality of medicinal plants during cultivation, collection and storage?

6. Write a note on current trends in study of medicinal plants.

7. According to you which method is the most suitable for classification of crude drugs? Why?

8. What are Glycosides? How are they classified?

9. Describe the isolation, medicinal and commercial importance of Bromelain.

10. Describe the importance of organoleptic evaluation of crude drugs with suitable examples.

11. What are the advantages, challenges and precautions required for studying marine drugs?

12. What are Volatile oils? What are the commercial and medicinal uses of volatile oils?

13. Write a note on sources, chemical nature and uses of natural hallucinogens.

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June-2024

Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-4)

PHYSICAL PHARMACEUTICS-II

Subject Code : BP/403T

M.Code : 75845

Date of Examination : 14-05-2024

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 do you mean by pseudoplastic flow?

   b) What is peptization?

   c) Give SI unit of kinematic velocity.

   d) What is heckel equation?

   e) Define thixotropic flow.

   f) What do you understand by stroke's law?

   g) Enlist methods to determine the viscosity.

   h) What is specific surface area?

   i) What is dielectric constant?

   j) What is second order reaction? Give its equation.

SECTION-B

2. Enlist different methods for determining the particle shape of solids. Describe any one in detail with its limitations.

3. What is thixotropy and anti-thixotropy? Give examples and explain the use of these properties of polymers in dosage form design.

4. What is HLB? Explain the importance of HLB value in formulating a stable emulsion system.

SECTION-C

5. Differentiate between Newtonian and Non-Newtonian flow of fluids. Explain Non-Newtonian fluid flow with examples.

6. Write a note on emulsifying agents giving suitable examples.

7. Explain plastic and elastic deformation in solids and correlate with Heckel Plot.

8. Describe the difference between a deflocculated and flocculated suspension. Discuss the role of structured vehicles in formulating a physically stable suspension.

9. Explain in detail about second order reaction.

10. What are the physical factors influencing degradation of pharmaceutical products?

11. Write a note on adsorption and its applications.

12. Mention the parameters to be evaluated for assessing stability of suspensions.

13. Discuss flocculation phenomena and its advantages while formulating a stable suspension.

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June-2024

Roll No. | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-4)

PHARMACOLOGY-I

Subject Code : BP/404T

M.Code : 75846

Date of Examination : 17-05-2024

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. How efficacy potency and affinity indifferent?

   b. Why some drugs follow zero order kinetics and other first order kinetics?

   c. How an antagonist is different from inverse agonist?

   d. How typical antidepressant drugs are different from atypical?

   e. What is cheese reaction?

   f. How parasympathetic nervous system is different from sympathetic nervous system?

   g. Define neurosis and psychosis.

   h. Write therapeutic used of benzodiazepines.

   i. What are the routes of administration of morphine?

   j. What are the functions of glutamate and GABA?

SECTION-B

2. Differentiate epilepsy and seizures. Classify anti epileptic drugs. Explain mechanism of action and adverse effect of valproic acid.

3. Define receptor. Classify different types of receptors. Write about JAK STAT signal transduction.

4. Define depressions. Classify anti-depressant drugs. Write mechanisms of action and adverse effects of tricyclic anti depressant.

SECTION-C

5. Write different therapeutic uses of benzodiazepines.

6. What are receptors? Write about ion channel receptors.

7. Explain different pharmacokinetic interactions.

8. Write a note on SSRI.

9. Enlist drugs causes disulfiram like reactions. What is the treatment of alcohol dependence?

10. Define anesthesia. Write different stages of anesthesia.

11. What is anxiety? Write uses of benzodiazepine and beta blocker in anxiety.

12. Classify cholinergic drugs.

13. Write drug used to treat myasthenia gravis.

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Questions : 13

B.Pharmacy (Sem.
HARMACEUTICAL ORGANIC
Subject Code : BP/4
M Code : 75843
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SECTION-A

t notes on :

tereoisomerism with an example.

ntantiomerism. Give one example.

symmetric carbon atom and give the fo
possible stereoisomers of 2,3-Dichlor
meso compounds? Give an example.

mical structures with numbering of Pyro
kraup synthesis of Quinoline.

ucture and medicinal uses of drug cont
reoselective example with suitable exp
portant applications of oppenauer-oxid

SECTION-B

2. Define geometric isomers. Give various methods of determining configuration of geometrical isomers.

3. Write mechanism involved in Beckmann's rearrangement and Claisen-Schmidt rearrangement.

4. Discuss aromaticity and reactions of Furan, Thiophine and also give reason for basicity of Pyridine.

SECTION-C

5. Write in detail about RS system of configuration.

6. Discuss the various conformational isomers of cyclohexane.

7. Explain the stereochemistry of biphenyls and conditions required for optical activity.

8. Discuss in short Asymmetric synthesis and Racemic modification.

9. Discuss Paal-Knoor synthesis and various medicinal uses of Pyrrole.

10. Write synthesis and important reactions of Indole.

11. Write chemical synthesis and medicinal significance of Imidazole nucleus.

12. Write briefly about Wolff-Kishner reduction and birch reduction.

13. Write down brief note on Dakin reaction and its synthetic applications.

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2024

Roll No. ☐☐☐☐☐☐☐☐☐☐

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharmacy (Sem.-4)

PHARMACEUTICAL ORGANIC CHEMISTRY-III

Subject Code : BP/401 T

M Code : 75843

Date of Examination : 07-05-2024

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 short notes on :**

   a) Define stereoisomerism with an example.

   b) Explain entantiomerism. Give one example.

   c) Define asymmetric carbon atom and give the formula to calculate isomeric forms.

   d) Write the possible stereoisomers of 2,3-Dichlorobutane.

   e) What are meso compounds? Give an example.

   f) Write chemical structures with numbering of Pyrazole and Acridine.

   g) Outline Skraup synthesis of Quinoline.

   h) Write structure and medicinal uses of drug containing azepine.

   i) Define stereoselective example with suitable example.

   j) Enlist important applications of oppenauer-oxidation reagent.

SECTION-B

2. Define geometric isomers. Give various methods of determining configuration of geometrical isomers.

3. Write mechanism involved in Beckmann's rearrangement and Claisen-Schmidt rearrangement.

4. Discuss aromaticity and reactions of Furan, Thiophine and also give reason for basicity of Pyridine.

SECTION-C

5. Write in detail about RS system of configuration.

6. Discuss the various conformational isomers of cyclohexane.

7. Explain the stereochemistry of biphenyls and conditions required for optical activity.

8. Discuss in short Asymmetric synthesis and Racemic modification.

9. Discuss Paal-Knoor synthesis and various medicinal uses of Pyrrole.

10. Write synthesis and important reactions of Indole.

11. Write chemical synthesis and medicinal significance of Imidazole nucleus.

12. Write briefly about Wolff-Kishner reduction and birch reduction.

13. Write down brief note on Dakin reaction and its synthetic applications.

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June-2024

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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 : 12-06-2024

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 :**

   (i) What is the physiological importance of histamine?

   (ii) Briefly explain the mechanism of action of omeprazole.

   (iii) What are osmotic diuretics?

   (iv) Give any two structural examples of beta-blockers.

   (v) Give synthesis of warfarin.

   (vi) Give structures of any two steroidal anti-inflammatory agents.

   (vii) Give the structure and mode of action of propyl thiouracil.

   (viii) Give the structure and medicinal uses of any glucosidase inhibitors.

   (ix) Give synthesis of methotrexate.

   (x) Give structure and mode of action of cyclophosphamide.

SECTION-B

2. Classify H1antagonist with suitable examples. Give synthesis and important uses of promethazine hydrochloride.

3. Classify alkylating agents used in treatment of cancer using suitable examples. Give detailed mechanism of action and synthesis of mechlorethamine.

4. Classify diuretics citing at least two structural examples of each class. Give synthesis and mechanism of action of acetazolamide.

SECTION-C

5. Write a short note on proton pump inhibitors used in the treatment of gastric ulcer.

6. Write a short note on calcium channel blocker used in the treatment of angina.

7. Classify antiarrhythmic agents. Give synthesis and mechanism of action of disopyramide phosphate.

8. Write a note on antihyperlipidemic agents.

9. Give important rules for assigning chemical name to steroidal derivative using suitable examples.

10. Explain role of selective phosphodiesterase-5 inhibitors in the treatment of erectile dysfunction.

11. Describe the mineralocorticoids and glucocorticoids citing structural examples of each class.

12. Describe amino benzoic acid derivative used as local anesthetics.

13. Give brief account of sulfonyl class of antidiabetic. Give synthesis and uses of tolbutamide.

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Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-5)

INDUSTRIAL PHARMACY-I (THEORY)

Subject Code BP502T

M.Code : 76787

Date of Examination : 14-06-2024

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 :

   i) What do you meant by creaming of emulsions?

   ii) Mention the ingredients of a hard capsule shell.

   iii) Give examples of four flocculating agents.

   iv) Give examples of compressed gases used in aerosols.

   v) Give examples of preservatives used in eye drops.

   vi) What are the uses of human thrombin?

   vii) Give examples of suspending agents.

   viii) Give two examples each of oil and water soluble preservatives used in liquid dosage forms.

   ix) Mention the theory behind diffusion of drugs through skin.

   x) What is the role of 'actuator' in an aerosol?

SECTION-B

2. Discuss in detail the quality control tests conducted on hard and soft gelatin capsules.

3. Describe three phase systems used for formulating aerosols. Mention the advantages associated with these systems and enlist the quality control tests conducted on them.

4. Discuss the preformulation studies conducted while formulating parenteral (I.M.) injection.

SECTION-C

5. Comment on the evaluation of eye drop formulations.

6. Enumerate the characteristics of a stable emulsion. Explain 'phase inversion temperature'.

7. Enumerate liquid filing equipment and describe the operation of any one.

8. Give a brief account of colors used in pharmaceutical preparations.

9. Comment on the formulation additives used in lyophilized sterile products.

10. Mention the legal requirements for containers for packaging of sterile products.

11. Comment on chemical properties of excipients affects while selection for formulation development.

12. Enumerate the reasons for low ocular bioavailability. Discuss the approaches for enhancing ocular bioavailability of drugs.

13. Comment on the evaluation of eye ointment formulations.

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June-2024

Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-5)

INDUSTRIAL PHARMACY-I (THEORY)

Subject Code BP502T

M.Code : 76787

Date of Examination : 14-06-2024

Time : 3 Hrs. Max. Marks : 75

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June-2024

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharma (Sem.-5)

PHARMACOLOGY II-THEORY

Subject Code : BP503T

M.Code : 76788

Date of Examination : 18-06-2024

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.
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SECTION-A

1. Write briefly :

a) What is Aliskiren? Mention its therapeutic uses.

b) How aspirin is useful as anti-platelet agent?

c) What are potassium sparing diuretics? Give two examples.

d) What is Semilente & Lente Insulin?

e) What are hematinics? Highlight their therapeutic uses.

f) What are bisphosphonates? Give two examples.

g) What is Metformin? Highlight its therapeutic uses.

h) Define bio-assays and highlight significance of bio-assay.

i) What is finasteride? Highlight its therapeutic indications.

j) What are autacoids? Give one example each of lipid derived and amine derived autacoids.

SECTION-B

2. Classify anti-hypertensive drugs and discuss pharmacology of beta-blockers.

3. Write a critical note on fibrinolytics.

4. What are hormonal contraceptives? Indicate various types of oral pills and discuss mechanism of an action and adverse effects of hormonal contraceptives.

SECTION-C

5. Write a note on selective COX-II inhibitors.

6. Write a brief note on drug therapy of shock

7. Discuss pharmacology of warfarin as oral anti-coagulants.

8. Discuss mechanism of an action and adverse effects of Insulin.

9. Add a note on angiotensin.

10. Discuss briefly about anti-gout drugs.

11. Write a brief note on Histamine.

12. Write a note on selective estrogen receptor modulator.

13. Add a note on bioassay of oxytocin.

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Roll No. | | | | | | | | | | | 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 : 24-06-2024

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) Loan License

   b) Schedule P

   c) Drug

   d) Spurious Drug

   e) Psychotropic substance

   f) Full form of CPCSEA and NLEM

   g) Medical termination of pregnancy act was passed in year_____and Right to information Act was passed in year_____.

   h) Central register

   i) Registered Medical Practitioner

   j) How many drugs are enlisted in latest NLEM?

SECTION-B

2. How the registration of establishments are done according to The Shops and Establishment Act? Discuss the offences and penalties associated with the Act.

3. What are the Education regulations and how are they implemented by PCI?

4. What are narcotic drugs? How can they be imported, exported and transshipped under the Act? Discuss the rules regarding cultivation and production of opium.

SECTION-C

5. Write the constitution of State Pharmacy Council of India.

6. What are the rules for stocking & disposal of expired drugs?

7. What classes of drugs and cosmetics cannot be manufactured and imported in India?

8. What are the conditions for cancellation of license for import of new drugs?

9. How does the manufacture of alcoholic preparations outside bond differ from that- in bond?

10. How the prices of bulk drugs fixed or revised by Government under DPCO?

11. Discuss whether termination of pregnancy deems to be legal or not in case of girl who is 14 years old.

12. How code of ethics help a profession?

13. What are the qualifications of a drug inspector?

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Total No. of Questions : 13

B.Pharmacy (Sem.-5)

PHARMACOGNOSY AND PHYTOCHEMISTRY II-THEORY

Subject Code : BP504T

M.Code : 76789

Date of Examination : 20-06-2024

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 are True and pseudo Tannins?

b) Name the biosynthetic pathways by which lignans and steroids are biosynthesized.

c) Give principle of Ultrasound assisted extraction method.

d) Which method of extraction would you prefer for extraction of glycosides from plants?

e) Give 1 physical property and 1 chemical property of Resins.

f) What are commercial and medicinal uses of Volatile Oils?

g) Give the complete biological source and uses of a plant containing flavonoids.

h) Give the complete biological source and uses of an anti-cancer plant drug.

i) What information we get from IR spectra?

j) Give 2 major differences between TLC & HPTLC.

SECTION-B

2. Describe the biosynthesis of cardiac glycosides. What are the glycosides present in *Digitalis purpurea*?

3. What is spectroscopy and the applications of spectroscopic in the study of plant drugs?

4. Describe the chemical nature, isolation, identification, uses and industrial production of Taxol.

SECTION-C

5. What are the different methods that are used for investigation of biogenetic studies?

6. What are Saponins? Describe the constituents of Dioscorea.

7. Write a detailed note on structure, isolation and uses of Atropine.

8. Give an account on source, chemistry and industrial production of podophyllotoxin.

9. How can you identify cardiac glycosides and anthraquinones in a given sample of plants?

10. What are alkaloids? How are they classified?

11. Write a detailed note on green extraction processes.

12. Discuss the factors that influence choice of extraction methods.

13. Write a detailed note on Gel electrophoresis.

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Total No. of Questions : 13

B.Pharma (Sem.-6)

BIOPHARMACEUTICS AND PHARMACOKINETICS (THEORY)

Subject Code : BP-604T

M.Code : 77989

Date of Examination : 16-05-2024

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. **Explain briefly :**

   a) Name plasma proteins responsible for drug - protein binding.

   b) How is elimination half-life of a drug calculated from slope of elimination phase?

   c) What is renal clearance and how is it calculated?

   d) What is meant by very high Vd?

   e) Mention four reasons for reduced oral bioavailability of drugs.

   f) Mention the non-renal routes of drug elimination.

   g) Draw the plasma - time curve for oral administration of drug for one compartment open model kinetics.

   h) What is pinocytosis?

   i) What is total clearance and how it is calculated?

   j) What is meant by biliary excretion?

SECTION - B

2. What is meant by non-linear pharmacokinetics. Discuss the factors responsible for non-linear pharmacokinetics of drugs.

3. Discuss the different absorption processes and mention their limitations.

4. IV injection of a drug to a 70Kg patient gave drug serum concentration of 1.2 microgm / ml and 0.3 microgm / ml at 2 hr and 5 hr, respectively. Calculate T1/2 of the drug assuming first order kinetics.

SECTION-C

5. If the T1/2 of a drug is 12 hr, how long would it take for 150 mg dose to get 30% eliminated?

6. Differentiate between one and two compartment open models. Draw typical plasma-time profiles for them after oral drug administration and label various phases in the profiles.

7. Discuss the Wagner Nelson method with suitable equations.

8. Comment on the methods employed for enhancing the dissolution rate of poorly soluble drugs.

9. Considering a IV bolus dose and simultaneous IV infusion, prove that for instantaneously achieving steady state a loading dose of R/K (infusion rate/elimination half-life) is necessary.

10 Differentiate between relative and absolute bioavailability.

11. Enumerate pharmaceutical factors influencing drug absorption and discuss any one in detail

12. What is Sigma-Minus method? Explain the method of calculating elimination rate constant by this method with the help of suitable equations.

13. Comment on factors affecting drug distribution in the body.

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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 : 03-05-2024

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) Mention health benefits of Spirulina.

   b) Enlist various categories of ICH guidelines.

   c) Write role of TKDL.

   d) Write any two examples of Natural Binders.

   e) Write various methods for authentication of herbal materials.

   f) Write examples of non-saccharide sweeteners.

   g) What is the principle of organic farming?

   h) Give side effects of Ginkgo biloba.

   i) Enlist institutions involved in work on medicinal and aromatic plants in India.

   j) Write basic principles of Ayurvedic System of Medicine.

SECTION-B

2. Enlist the various components of Nutraceuticals. Discuss the role of nutraceuticals in cardiovascular disorders.

3. Explain about colorants, conditioners and antidandruff agent of herbal origin used in hair care cosmetic products.

4. What are the objectives of Schedule T? Discuss infrastructural and machinery equipment requirements for manufacturing of ISM according to Schedule T.

SECTION-C

5. Explain pharmacodynamic and pharmacokinetic interactions of Ginseng and Ephedra.

6. Write classification of Biopesticides.

7. Discuss present scope and future prospects of Herbal Drug industries.

8. What are Phytosomes? Discuss their advantages and method of preparation.

9. Mention steps involved in the preparation of Lehyas.

10. Explain various methods of processing of herbal raw material.

11. Differentiate between Biopiracy and Bioprospecting. Give an overview of case study of Curcuma.

12. Discuss various conditions requirements for stability testing of herbal drugs.

13. Which agencies / authorities regulate ASU drugs in India?

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Roll No. | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-6)

MEDICINAL CHEMISTRY-III-THEORY

Subject Code : BP-601T

M.Code : 77986

Date of Examination : 06-05-2024

Time : 3 Hrs. Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
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SECTION-A

1. Answer briefly :

a) Give chemical structure and uses of Penicillin G.

b) Write the structure and uses of Chloramphenicol.

c) What is lead molecule? How are they useful in drug discovery?

d) Write synthesis of Miconazole.

e) Define Taft's steric constant of substituent. Comment on its applicability.

f) Write chemical structure and uses of Amantadine.

g) Write chemical structure and uses of Methanamine.

h) What are beta lactamase inhibitors?

i) Which alkaloid has anti-malarial activity?

j) Write the structure and uses of Zidovudine.

SECTION-B

2. Give SAR of quinolones used as urinary tract anti-infective agents. Write synthesis of ciprofloxacin.

3. Write the SAR and chemistry of sulpha drugs. Write the synthesis of Trimethoprim.

4. Write a note on prodrug concept and combinational chemistry in drug discovery.

SECTION-C

5. What is fundamental principle of QSAR? Discuss any one conventional 2D QSAR model in detail.

6. Write a short note on HIV protease inhibitors by giving suitable examples.

7. What are antifilarial drugs? Discuss in detail Ivermectin.

8. What are beta lactam antibiotics? Write the degradation products of penicillin.

9. What are anti-protozoal agents? Give the structures of Iodoquinol and Metronidazole.

10. Write chemical structure of Tetracycline, Chlortertracycline. Mention their three therapeutic uses.

11. Classify the cephalosporins based on generation. Write the structure and uses of Cephalexin.

12. What are macrolides? Write their mode of action. Give structure and medicinal uses of erythromycin.

13. Define and classify anthelmintics. Write the synthesis of Mebendazole.

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Total No. of Questions : 13

B.Pharmacy (Sem.-6)

QUALITY ASSURANCE-THEORY

Subject Code : BP-606T

M.Code : 77991

Date of Examination : 23-05-2024

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.
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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.

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. Discuss good warehousing practices in detail.

SECTION-C

5. Differentiate between GLP and GMP.
6. Write an account on audit cycle.
7. What do you mean by forward and backward tracing and trail following?
8. Explain the use of Quality loop and spiral loop of process model in Quality assessment system.
9. Define customers. How do you measure the customer satisfaction in a service industry?
10. What is product recall? Explain procedure of product recall.
11. What are the four pillars of GLP?
12. Write a note on complaints and recalls.
13. Explain various quality control tests on closures.

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B.Pharmacy (Sem.-6)

PHARMACOLOGY-III-THEORY

Subject Code : BP602T

M.Code : 77987

Date of Examination : 09-05-2024

Time : 3 Hrs. Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

1. **Answer the following :**

   a) Name the anti-asthmatic drug administered by subcutaneous route.

   b) Drug of choice for Zollinger-Ellison syndrome.

   c) Drug of choice for Surgical Prophylaxis.

   d) Name the anti-cancer drugs can cross BBB.

   e) What are immunostimulants?

   f) Name the drug of choice for Bronchial Asthma.

   g) What do you mean by chrono-pharmacology?

   h) Define biological clock and circadian rhythm.

   i) Drug of choice for Chemotherapy induced vomiting.

   j) Which drug is used for Malaria in combination with Sulfadiazine?

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SECTION-B

2. What are the drugs used for the management of COPD?

3. Classify anti-malarial drug. Give details.

4. What are the different principles for treatment poisoning? Write about clinical management of organ-phosphorous and lead poisoning.

SECTION-C

5. Write a note on anti-fungal drugs.

6. Define Genotoxicity and Carcinogenicity. Give details.

7. What is the significance of Chronotherapy? Write in detail.

8. What are the different principles for treatment poisoning?

9. Classify anti-TB drugs and write about its resistance.

10. What are the factor affecting choices of anti microbial agents?

11. Write a note on carminatives.

12. What are the used and adverse effects of tetracyclines, quinolones and aminoglycosides?

13. Give a brief note on anti-tussives and expectorants.

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B.Pharmacy (Sem.-6)

QUALITY ASSURANCE-THEORY

Subject Code : BP-606T

M.Code : 77991

Date of Examination : 23-05-2024

Time : 3 Hrs. Max. Marks : 75

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   e) Validation
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   g) Triple role concept
   h) ISO 14000
   i) Master formula record
   j) Calibration.

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. Discuss good warehousing practices in detail.

SECTION-C

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B.Pharmacy (Sem.-6)

PHARMACEUTICAL BIOTECHNOLOGY-THEORY

Subject Code : BP605T

M.Code : 77990

Date of Examination : 20-05-2024

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 :**

   i. Role of DNA ligase

   ii. Applications of restriction endonucleases

   iii. Functions of Catalase and Proteases

   iv. ELISA

   v. Antitoxins

   vi. T Cell mediated immunity

   vii. Fed batch fermentation

   viii. Crystalloids

   ix. Plasmids

   x. Protein engineering.

SECTION-B

2. Describe in detail the working and applications of biosensors.

3. Write in detail the production of viral vaccines.

4. Write an explanatory note on factors affecting the design of media for fermentation. Highlight the role of agitation and aeration in fermentation .

SECTION-C

5. Emphasize the role of plasma substitutes with examples.

6. Write a note on hybridoma technology.

7. Describe the various methods of enzyme immobilization.

8. Describe the role of genetic engineering in medicine.

9. Describe the types of hypersensitivity reactions and their significance.

10. Describe the types of reactions mediated by microorganisms.

11. Write a note on the process of Transformation.

12. Describe the critical factors in the production of citric acid .

13. Illustrate the structure of Immunoglobulins.

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Total No. of Questions : 13

B.Pharmacy (Sem.-7)

INSTRUMENTAL METHODS OF ANALYSIS-THEORY

Subject Code : BP-701T

M.Code : 78387

Date of Examination : 11-06-2024

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) Define auxochrom. Give two examples.

   (b) *Electrophoretic mobility of an analyte is slow along the wall of capillary than in the center of the capillary.*Why?

   (c) What is Rate theory of chromatographic separation?

   (d) What is tyndal effect? Give its application in spectroscopic analysis.

   (e) Define an overtone band. Give an example.

   (f) What are spectral and natural band widths?

   (g) How fluorescence differs from phosphorescence?

   (h) Name any four solute-property specific detectors used in HPLC.

   (i) What are the advantages of HPLC over GC?

   (j) What are the different methods of excitation in atomic spectroscopy?

SECTION-B

2. Give detailed description of a UV-VIS spectrophotometer with the help of a neatly drawn labelled flow diagram. Explain in detail various detectors used in it. (4+6)

3. What is the principle of IR spectroscopy? Explain different types of vibrations detected in this technique. How does the vibrational frequency of any bond is affected by different factors? Support your answer with relevant examples. (2+2+6)

4. Write a descriptive note on ion-exchange chromatography with emphasis on its principle, ion- exchange mechanism, different ion-exchange resins and their applications. (2+2+6)

SECTION-C

5. Write a descriptive note on factors affecting fluorescence.

6. Write a brief account on light sources used in an atomic absorption spectrophotometer.

7. What is the importance of atomizer in flame emission spectroscopy? Recall various types of atomizers.

8. What is the principle of electrophoresis? Describe the working, limitations and advantages of capillary electrophoresis.

9. What is the need of derivatization in GC? Discuss various derivatization methods with examples.

10. Write a note on theory, instrumentation and applications of affinity chromatography.

11. How does normal-phase chromatography differ from reverse-phase chromatography? Recall various reverse-phase stationary phases with their specific applications.

12. Derive Beer-Lambert's Law. Discuss different types of deviations associated with its disobeyance.

13. Write a descriptive note on Van-Deemter equation for chromatographic separation.

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy (Sem.-7)

PHARMACY PRACTICE - THEORY

Subject Code : BP703T

M.Code : 78389

Date of Examination : 15-06-2024

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) Define patient medication adherence.

   (b) Define idiosyncracy.

   (c) Define Hospital Formulary.

   (d) Write the definition of a hospital.

   (e) Define ward round participation and its significance.

   (f) Write briefly about OTC drugs.

   (g) Write briefly about patient medication history and its significance.

   (h) Write briefly about investigational use of drugs.

   (i) Define and enlist various hematological tests.

   (j) Define pharmacokinetic drug interactions with two examples.

SECTION-B

2. Discuss about organization of a drug store, types of material stocked and storage conditions.

3. Discuss about causes of medication non-adherence, pharmacist role in the medication adherence and monitoring of patient medication adherence.

4. Discuss about organisation structure of a hospital medical staff involved in a hospital and their functions.

SECTION-C

5. Discuss about the responsibilities and functions of hospital pharmacists.

6. Discuss about types of drug distribution in a hospital and dispensing of controlled substances.

7. Discuss about organization and structure of retail and wholesale drug store, types and legal requirements.

8. Discuss about sources of drug information, storage and retrieval of information.

9. Define patient counselling and steps involved in patient counselling.

10. Discuss about prescribed medication order, its interpretation and legal requirements.

11. Discuss about purchase procedure, procurement and stocking in a drug store.

12. Discuss about economic order quantity, recorder quantity level and methods used for the analysis of drug expenditure.

13. Discuss about rational use of common over the counter medications.

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Roll No. | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 13

B.Pharmacy. (Sem.-7)

NOVEL DRUG DELIVERY SYSTEM-THEORY

Subject Code : BP704T

M.Code : 78390

Date of Examination : 19-06-2024

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 :

   i. Ocuserts

   ii. Controlled release systems

   iii. Branched polymers

   iv. Microcapsules

   v. Inflatable GRDDS

   vi. MDIs

   vii. Protein binding

   viii. Microencapsulation

   ix. Permeation enhancers

   x. Timed release DDS.

SECTION-B

2. Write a descriptive note on the various approaches used in the formulation of CRDDS.
3. Explain in detail the structure of the skin, factors affecting permeation and various approaches used in the formulation of TDDS.
4. Discuss in detail the critical factors in the formulation of DPIs and MDIs.

SECTION-C

5. Write a note on formulation of IUDs.
6. Discuss the importance of ocular delivery.
7. What are liposomes? Discuss their applications.
8. Write a note on properties of polymers used in CRDDS.
9. What are Gastroretentive systems?
10. Discuss the importance of permeation enhancers in TDDS .
11. Discuss with diagram the principle of osmotic pump.
12. Write a note on various methods of microencapsulation.
13. Describe the formulation of dissolution controlled CRDDS .

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B.Pharmacy (Sem.-8)

PHARMA MARKETING MANAGEMENT

Subject Code : BP803ET

M.Code. : 79766

Date of Examination : 13-05-2024

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 are the advantages of market segmentation?

b) Differentiate "Marketing" and "Market".

c) Define needs, wants and demands.

d) What is product mix?

e) What are the advantages of medical exhibition?

f) Define Advertisement.

g) How C & F agents different from wholesale?

h) Explain Hospital Pharmacy as retail Outlet.

i) Define Vertical Marketing system.

j) Difference between Marketing and Selling.

SECTION-B

2. How do you segment pharmaceutical market? Discuss the criteria of market segmentation.

3. Define brand. Explain the various types of brand.

4. Define promotion. Write s detail note on different element of promotional mix.

SECTION-C

5. What is the significance of retailers in distribution of drugs?

6. Discuss the methods of non-price competition.

7. Explain the various dimensions of the pharmaceutical product?

8. Explain with examples how the life cycle of a product can be extended.

9. Write difference between Pharmaceutical marketing and consumer marketing.

10. Briefly explain the factors that contribute to the patient's choice of a physician?

11. Write the objectives and importance of NPPA.

12. Explain the factors that are considered in selection of PSR.

13. What are the factors considered for deciding the promotional budget?

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Total No. of Questions : 13

B.Pharmacy (Sem.-8)

PHARMACOVIGILANCE

Subject Code : BP-805-ET

M.Code : 79768

Date of Examination : 06-05-2024

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) Define Pharmacovigilance and Eudravigilance.

   b) Expand and explain the term SUSAR.

   c) Define pre-market and post-market reports.

   d) Define hemovigilance and materiovigilance.

   e) Define PvPI.

   f) Define GCP and GPP.

   g) Define DSUR and PSUR.

   h) Enlist various sources of drug information.

   i) Define WHO drug dictionaiy.

   j) Define teratogenicity and mutagenicity.

SECTION-B

2. Describe various information resources for efficient conducting of pharmacovigilance process.

3. Describe various observational study designs for conducting research in Pharmacovigilance.

4. Describe ICH GCP guidelines for Pharmacovigilance studies.

SECTION-C

5. Describe the methods of causality and seriousness assessment of ADRs.

6. Describe the establishment and operation of drug safety department in industry.

7. Briefly overview about the WHO drug dictionary.

8. Describe the methods for vaccine surveillance program.

9. Describe the methods of active and passive surveillance.

10. Briefly describe effective modes of communication in Pharmacovigilance.

11. Describe the various phases of drug development.

12. Describe ICH guidelines for individual case safety reports.

13. Describe the concept of drug safety evaluation in paediatric patients.

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Total No. of Questions : 13

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B.Pharmacy (Sem.-8)

PHARMACEUTICAL REGULATORY SCIENCE

Subject Code : BP804ET

M.Code : 79767

Date of Examination : 03-05-2024

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) The United States Food and Drug Administration's Investigational New Drug (IND) program is the means by which a pharmaceutical company obtains permission to

i) Market a new drug

ii) Start with human clinical trials

iii) Begin with animal testing of new drug

iv) Import new drug.

b) The 600 series in the Chapter 1 of 21 CFR deals in

i) cGMP

ii) Cosmetics

iii) Biological products

iv) OTC drugs.

c) Competitor can file for ANDA before its expiry under _____ clause of ANDA certification clause

i) Para I

ii) Para II

iii) Para III

iv) Para IV

d) Which regulatory body in FDA is responsible for approval of drugs?

i) BLA

ii) IND

iii) CBER

iv) CDER

e) Which of the following is an International regulatory authority for drug regulation?

i) CDSCO

ii) US-FDA

iii) ICH

iv) EMA

f) Which of the following is filled by a sponsor to initiate clinical trials?

i) New Drug Application

ii) Investigational New Drug Application

iii) Subsequent new drug application

iv) None of the above.

g) Generic products are same as innovator products except in

i) API

ii) Dosage form

iii) Dose

iv) Excipients.

h) Central drug testing laboratory is located at

i) Kasouli

ii) Delhi

iii) Lucknow

iv) Bangalore.

i) The initiation of ICH took place with representation of regulatory agencies of _____ _____ to discuss wider implications and regulations.

i) Europe, Japan and US

ii) Europe, Japan and Australia

iii) Europe, Germany and US

iv) Australia, Japan and the US.

j) In pharmacovigilance term ADR stands for

i) Adverse Drug Reaction

ii) Adverse Drug Report

iii) Adverse Dose Report

iv) Adverse Dose Reaction.

SECTION-B

2. Describe general consideration, specific requirements and contents of an NDA.

3. Discuss the details of Waxman-Hatch Act. Describe how Waxman-Hatch Act has simplified and facilitated approval of generic products in US.

4. What is Common Technical Document? Describe various CTD modules.

SECTION-C

5. Define new drug according to FDA. Explain in detail the new drug development process with the time course for each phase.

6. Write a note on Preclinical studies as per CDSCO.

7. Write scope and approaches of 21 CFR part 11.

8. Why there is need of pharmacovigilance?

9. Write a note on International Good Clinical Practices.

10. How did Bolar provision give boost to ANDA approval process?

11. Write a note on purple book.

12. Discuss content of ASEAN Common Technical Document.

13. Discuss the salient features of FDA guidelines for clinical trials in India.

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Total No. of Questions : 13

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B.Pharmacy (Sem.-8)

SOCIAL AND PREVENTIVE PHARMACY

Subject Code : BP-802-T

M.Code : 79765

Date of Examination : 30-04-2024

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 and classify Diabetes Mellitus.

   b) Enlist major determinants of social health.

   c) Enlist the various diseases caused by deficiency of Vitamins - A and D.

   d) Expand and explain the term-'IDSP'.

   e) Define 'Nikshay Poshak Yojana'.

   f) Enlist various benefits of 'Indira Gandhi Matritva Sahyog Yojna'.

   g) Enlist various strategies to control malaria.

   h) Define Universal Immunization Program.

   i) Name causative agents for TB and Influenza.

   j) What is the theme of 'National AIDS Day'?

SECTION-B

2. Describe the objectives, strategies and outcomes of National AIDS Control Program.
3. Describe the core strategies and outcomes of National Malaria Prevention Program.
4. Describe the general principles for prevention and control of Cancer.

SECTION-C

5. Describe the role of WHO in Country Cooperation Strategy (2019-23).
6. Describe the various methods of prevention of HIV infection.
7. Describe the significance of contact tracing for control of infectious diseases in India.
8. Describe the Objective of National Program for Prevention and Control of Deafness.
9. Briefly describe the four pillars approach for management of TB in India.
10. Describe various types of nutrients and diseases caused by their deficiency.
11. Describe various socio-cultural factors affecting the health of a subject
12. Describe the causes, prevention and management of pneumonia.
13. Describe various initiatives taken by Govt. of India for improving rural sanitation.

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Total No. of Pages : 02

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B.Pharmacy (Sem.-8)

COMPUTER AIDED DRUG DESIGN

Subject Code : BP807ET

M.Code : 79770

Date of Examination : 24-04-2024

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 do you mean by target identification step in process of drug discovery and development?

   b) What is analog?

   c) What do you mean by serendipitous way of drug discovery?

   d) Define Taft's steric constant.

   e) What is dummy variable?

   f) What do you mean by drug likeliness?

   g) What is flexible docking?

   h) Comment on role of bioinformatics in drug designing.

   i) Name any two databases used in ADMET profiling on NCE.

   j) Define local energy minima.

SECTION-B

2. Give detail account of bioisosteric based analog designing citing at least one case study.

3. What are the differences between CoMFA and CoMSIA? Give detail about contour analysis in both these 3D-QSAR approaches.

4. What is the difference between docking and pharmacophore-based screening? Give the advantages and disadvantages each of these two CADD techniques.

SECTION-C

5. Describe the clinical observation-based lead optimization with suitable examples.

6. Describe the additivity model of conventional QSAR along with advantages and disadvantages.

7. Describe Lipinski's rule of five and its importance in *in silico* drug design.

8. Give outline for pharmacophore mapping methodology.

9. Describe the ADMET databases which are commonly used for *in silico* drug designing.

10. Describe the concept of quantum mechanics and its utility in molecular modeling.

11. Discuss the principle, advantages and disadvantages of conjugate gradient.

12. Explain the role of chemo-informatics in drug designing.

13. Discuss relationship between Hansh and Free Wilson models.

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B.Pharmacy (Sem.–8)

COSMETIC SCIENCE

Subject Code : BP809ET

M.Code : 79772

Date of Examination : 16-05-2024

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 short notes on :**

   a) Misbranded cosmetics

   b) Cosmetics as per EU guidelines

   c) Cosmetics *vs* cosmaceuticals

   d) Application of emollients

   e) Conditioning shampoos *vs* anti-dandruff shampoos

   f) Enumerate common problems of teeth

   g) Two main functions of skin

   h) Dermatitis

   i) Causes of dry skin

   j) Clove for oral care

SECTION-B

2. Draw a neat labelled diagram of hair. Discuss hair growth cycle along with diagrammatic representation.

3. Discuss the principles of :

   a) measurement of TEWL

   b) corneometer

   c) sebumeter.

4. Discuss the BIS specification and analytical methods for shampoos.

SECTION-C

5. Discuss cosmetic problems related with acne and prickly heat.

6. Discuss the role of henna and amla for hair care.

7. Write briefly about formulation of hair oils.

8. Discuss preservatives as excipient.

9. How SPF is calculated? Classify sunscreens.

10. Discuss the ingredients used for formulating moisturizing cream

11. Write in brief the formulation of teeth whitening cosmetics.

12. Classify surfactants used for cosmetics with examples.

13. Discuss the hair combing properties.

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Total No. of Questions : 13

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B.Pharmacy (Sem.-8)

PHARMACEUTICAL PRODUCT DEVELOPMENT

Subject Code : BP813 ET

M.Code : 79776

Date of Examination : 24-05-2024

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 :**

   i) Stability assessment

   ii) Factorial design

   iii) Critical quality attributes

   iv) Levels of factors

   v) Independent variables.

   Give any two examples of

   vi) Superdisintegrants used in tablets

   vii) Diluents used in capsules

   viii) Solvent

   ix) Packaging ROPP materials

   x) Suspending.

SECTION-B

2. Explain the regulations related to manufacturing.
3. Explain how various optimization techniques used for Pharmaceutical Product Development.
4. Explain regulations for the quality control tests for dosage form for Pharmaceutical Product Development.

SECTION-C

5. Explain solubilizers with examples giving emphasize on Pharmaceutical Product Development.
6. Explain cyclodextrins. Give examples.
7. Explain the excipients used in making ointments and suppositories.
8. Enumerate the excipients used for making Small volume parenteral.
9. Enumerate excipients for directly compressable tablets.
10. What is Quality by design? Explain with applications.
11. Explain Factorial design.
12. What are the factors effecting selection of excipients for NDDS during Pharmaceutical Product Development?
13. Write a short note on excipients for Aerosol products.

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June-2024

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B.Pharmacy (Sem.-8)

ADVANCED INSTRUMENTATION TECHNIQUES

Subject Code : BP811ET

M.Code : 79774

Date of Examination : 23-05-2024

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) Carbon-13 is detected in NMR but Carbon-12 is not. Why?

(b) What is Nitrogen rule? Give its significance.

(c) Describe Brag's law.

(d) Enumerate different types of crystals.

(e) What is system suitability is validation?

(f) Give any two elements used in Radioimmuno assays with their specific applications.

(g) What is the principle of solid-phase extraction?

(h) Differentiate between Benzyl acetate and Phenyl propionate on the basis of NMR spectra.

(i) What is tropylium ion? Give its significance in structural elucidation.

(j) Give limitations of GC-MS over LC-MS.

SECTION-B

2. Write a comparative account of DSC, DTA and TGA. Give their specific applications.

3. What is the principle of LC-MS/MS? Describe the working of a typical LC-MS instrument with the help of a block diagram. Write a detailed account on various analyzers used in it.

4. Describe various methods of ionization used in mass spectrometry.

SECTION-C

5. What is spin-spin splitting? Explain the mechanism of splitting of signal with examples.

6. Define the term magnetic anisotropy. How does it affect precessional frequency of protons?

7. Explain the working of TOF analyzer. Enumerate its advantages and limitations.

8. Describe the working of rotating crystal technique.

9. What is the importance method validation? Write an account on USFDA guidelines for method validation.

10. What is the principle of RIA? Describe its methodologies and applications.

11. Write a note on principle, methodology and applications of liquid-liquid extraction.

12. What are isotope peaks? Discuss their importance with specific examples.

13. Give a step-by-step procedure for calibration of fluorimeter.

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B.Pharmacy (Sem.-8)

BIOSTATISTICS AND RESEARCH METHODOLOGY

Subject Code : BP801T

M.Code : 79764

Date of Examination : 21-05-2024

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 are the ideal characteristics of measure of dispersion?

(b) What are different types of frequency distribution?

(c) Distinguish between Binomial and Poisson distribution.

(d) Define Null Hypothesis and Alternate Hypothesis.

(e) What is the need for research?

(f) Give major applications of minitab statistical software in clinical trials.

(g) Differentiate between observational and experimental studies.

(h) Define Factorial Designs.

(i) Enlist practical components of clinical trial problems.

(j) Differentiate between Correlation and Regression analysis.

SECTION-B

2. Test following data for statistical significance. If Significant difference exists among groups, then apply Fisher's Least Significant Difference test for multiple comparison.

A	B	C	D
14	22	58	34
18	24	54	33
17	28	59	38
15	29	53	35
12	20	56	37
18	28	57	42
19	29	59	39
11	24	57	35
10	23	53	33
17	21	55	31

3. (a) Two automatic filing machines A and B are used to fill tea in 500 gm cartons. A random sample of 100 cartons on each machine showed the following :

Tea content (in gms.)	A	B
470-480	12	10
480-490	18	15
490-500	20	24
500-510	22	20
510-520	24	18
520-530	4	13

Comment on the performance of two machines,

(b) Write a note on 'Karl Pearson's Coefficient of Correlation'.

June-2024

4. **Write notes on :**

   (a) Wicoxon Rank Sum test

   (b) Plagiarism

SECTION-C

5. Write a note on optimization Techniques.

6. Discuss advantages of factorial designs in analysis of experiments?

7. Explain Confounding system for two level factorials.

8. Compute mean, mode and median from the given table for the heights of the students with the corresponding frequencies :

Heights	57-58	58-59	59-60	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69
Frequency	10	12	14	20	22	43	37	14	8	12	5	3

9. Explain curve fitting by method of least squares.

10. Describe various phases of Clinical trials.

11. What are different types of sampling? Explain probability sampling methods.

12. What are different types of graphs for representation of statistical data? Explain response surface plot and counter plot graph.

13. Write a detailed note on R-Online statistical software.

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