ER 20-23T: Biochemistry and Clinical Pathology

INTRODUCTION TO BIOCHEMISTRY

I. LONG ANSWERS (5M)

1. Draw a well labelled diagram of a typical animal cell.
2. Write the functions of mitochondria & nucleus.
3. Comparison between prokaryotic and eukaryotic cells.
4. Write structure functions of mitochondria, cell membrane and nucleus.
5. Describe the structure and functions of any five cell organelles.

II. SHORT ANSWERS (3M)

1. Define lysosomes.
2. Define the terms biochemistry and biomolecules.
3. Name four important organelles of animal cell and write one function of each.
4. Endoplasmic reticulum
5. Lysosomes
6. Cytoplasm
7. Golgi apparatus

CARBOHYDRATES

I.DETAIL ANSWERS (5M)

1.Define and classify carbohydrates with example of each class.
2.Give schematic representation of classification of carbohydrates. Explain each class with examples.
3.Describe polysaccharides in detail.
4.Give an account of the structures of disaccharide and polysaccharide.
5.Explain homopolysaccharides in brief.
6.Write a short note on heteropolysaccharides.
7.State the differences between Starch and Glycogen.
8.Draw structures of Glucose, Fructose and Galactose.
9.Write structure of Maltose & Lactose
10. Explain structure of starch.
11. Explain the identification test for Carbohydrates
12. Draw shapes of various osazones of carbohydrates and write reaction involved in osazone formation of Glucose.
13. Give biological importance of carbohydrates.
14. Discuss the chemical properties of carbohydrates.
15. Give properties, structure and uses of Sucrose.

II. SHORT ANSWERS (3M)

1. Write Barfoed's test and give its significance and principle.
2. Justify why sucrose is non-reducing sugar.
3. Define carbohydrates with examples.
4. Benedicts test.
5. Write a note on reducing sugars
6. Name the disaccharides.
7. Differentiate reducing sugars and non-reducing sugars.
8. Narrate the nutritional importance of carbohydrate.
9. Reducing disaccharide
10. What is epimer? give example.
11. Properties of carbohydrates
12. Define epimer. Name two epimer
13. Isomerism in carbohydrates.
14. Anomerism.
15. Give the ring structure of α and β D Glucose.
16. Write a note on Starch
17. Write a note on Glycogen
18. Molisch's test
19. Fehling's test
20. Iodine test
21. Seliwanoff's test
22. Amylose
23. Amylopectin

PROTEINS

I.LONG ANSWERS (5M)

1. Define and classify proteins with examples.
2. Describe secondary structure of proteins.
3. Explain the different level of organization of protein structure.
4. Define proteins. Explain the role of proteins in human body
5. Explain the identification test for Proteins
6. Explain denaturation of proteins in detail.
7. What are amino acids? Classify them with examples.
8. Properties of amino acids.
9. Describe acid base properties of amino acids.
10. Explain the precipitation reactions of protein?
11. Discuss the properties of proteins.
12. Explain nutritional deficiency diseases of proteins.
13. Give the structure of 2 amino acids of each class.

II. SHORT ANSWERS (3M)

1. Draw the structures of alanine & phenylalanine.
2. Explain isoelectric pH of amino acid.
3. Name sulphur containing amino acids.
4. What are essential amino acids? Name them.
5. Narrate the nutritional importance of proteins.
6. Biological value of proteins.
7. Marasmus & kwashiorkor
8. Branched chain amino acids.
9. Limiting amino acid.
10. Write the principle and significance of biuret test.
11. List 2 differences between marasmus and kwashiorkor?
12. Name the basic Amino Acids.
13. What is meant by quartenary structure of a protein? Name a protein, abundantly found in blood that has a quartenary structure.
14. Name the Aromatic Aminoacids.
15. Polypeptides
16. Nutritional edema
17. Define protein.
18. Differentiate between essential and non-essential amino acids.
19. What are non-essential amino acids? Name them.
20. Heat coagulation test
21. Millon's reagent test
22. Ninhydrin test
23. Sakaguchi test
24. Xanthoprotein test