

2023
BIOCHEMISTRY AND CLINICAL PATHOLOGY

Full Marks: 80

Time Allowed: 3 Hours

1. Choose the correct alternative (any ten) 1x10=10
- Normal level of serum bilirubin is - (a) less than 1mg/dL (b) 2.5 mg/dL (c) 10 mg/dL (d) None of these.
 - Acetoacetic acid is a (a) Ketone body (b) Amino acid (c) Bile acid (d) None of these.
 - One example of Heteropolysaccharide is - (a) Hyaluronic acid (b) Cellulose (c) Starch (d) Raffinose.
 - An example of basic amino acid is - (a) Arginine (b) Asparagine (c) Aspartic acid (d) None of these.
 - Deficiency of vitamin D leads to - (a) Cancer (b) Scurvy (c) Rickets (d) None of these.
 - Lactose is composed of _____ and glucose: (a) Fructose (b) Galactose (c) Sucrose (d) None of these.
 - Human body contains about _____ % water - (a) 30 (b) 40 (c) 70 (d) 99.
 - Mostly enzymes are _____ in nature - (a) Lipid (b) Sugar (c) Protein (d) None of these.
 - Starch with iodine gives _____ colour - (a) Red (b) Green (c) Blue (d) None of these.
 - Reducing sugar contain free - (a) Carboxylic acid (b) Aldehyde (c) Alcohol and d) Alkane group.
 - The inactive form of enzyme is - (a) Proenzyme (b) Zymogen (c) Zymase (d) Both (a) & (b).
 - The nitrogenous base not present in DNA structure - (a) Adenine (b) Guanine (c) Cytosine (d) Uracil.
2. A. Define the following terms (any five)- 1x5
 i) Iodine number, ii) Microminerals, iii) Co-enzyme, iv) Metabolic Water, v) Polycythaemia
 vi) Cholesterol 1x5
- B. Fill in the blanks (any five) -
- Full form of NADP is _____.
 - Full form of SGPT is _____.
 - The detection of HIV is confirmed by _____ test.
 - Example of semi essential amino acid is _____.
 - Gaucher's disease is caused by deficiency of enzyme _____.
 - The amino acid that does not participate in transamination _____.
3. Answer the following questions (any ten)- 3x10=30
- What is 'Mutarotation'?
 - Briefly enumerate the major pathways of carbohydrate metabolism.
 - Calculate ATP generation per molecule of glucose in glycolysis.
 - "The backbone of nucleic acid structure is 3'-5' phosphodiester bridge."—justify.
 - Classify enzyme according to IUB system.
 - Explain briefly ketogenesis.
 - Write about the functions and deficiency diseases of vitamin A.
 - Write in tabular form about water turnover and balance in human body.
 - Write a brief note on important contributions of Biotechnology in human welfare.
 - Write a brief note on disorders associated with abnormal metabolism of carbohydrates.
 - Write a note on Competitive Inhibition of enzyme.
 - What are the various tests performed to determine the quality of lipids?
4. Answer the following questions (any six)- 5x6=30
- Write down the source, physiological functions and deficiency symptoms of Calcium and Iron.
 - Classify carbohydrates with examples. Write down the functions of carbohydrates. (3 + 2)
 - Write in brief about different structures of proteins.
 - Write short notes on Lipid metabolism with reference to β -oxidation of palmitic acid.
 - Explain briefly the structure of RNA or DNA.
 - Explain briefly about different factors affecting enzyme activity.
 - Mention the abnormal constituent of urine with their significance in diseases.
 - Identify and write down the four oxidative steps in Krebs' Cycle.