

[Time: 3 Hours]

[Marks: 80]

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.

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| 1. | a) | Draw the structure of α - D mannose by using Haworth projection formula | 1 |
| | b) | Draw the structure of D-xylose by using Fischer projection formula | 1 |
| | c) | Name proteolytic enzyme required for digestion of protein | 1 |
| | d) | Explain metabolism with example | 1 |
| | e) | Enlist fat soluble vitamins | 1 |
| | f) | Define mutarotation | 1 |
| | g) | Give the structure of coenzyme of Vitamin B ₂ | 1 |
| | h) | Name the pyrimidine nitrogenous bases | 1 |
| | i) | Write the structure of C ₄ epimer of glucose | 1 |
| | j) | Draw the structure of 18:2($\Delta^{9,12}$) | 1 |
| | k) | Draw the structure of ATP | 1 |
| | l) | Deficiency of Vitamin-A leads to | 1 |
| | m) | Give the name and draw the structure of basic amino acids | 2 |
| | n) | Differentiate sucrose and maltose | 2 |
| | o) | Explain the α -helix structure of proteins | 2 |
| | p) | Enlist essential amino acids | 2 |
| 2. | a) | Explain the primary and tertiary structure of proteins | 3 |
| | b) | Explain ATP as energy carrier | 3 |
| | c) | Write a note on Vitamin-B ₆ or Vitamin-B ₇ | 3 |
| | d) | Explain nucleotides | 2 |
| | e) | Enumerate silent features of digestion of proteins | 1 |

3. a) Write a note on starch 3
b) Differentiate DNA and RNA 3
c) Write a note on Vitamin-C 3
d) Explain the relationship between standard free energy change and equilibrium constant 2
e) Comment on conversion of glucose to energy in RBCs 1
4. a) Classify amino acids based on functional group with examples (No structures required) 3
b) Write a note on glycolipids or phospholipids 3
c) Discuss the biochemical role of thiamine **or** nicotinamide 2
d) Explain melting and annealing of DNA 2
e) Give example of high energy phosphate bond and explain their role 2
5. a) Write a note on folic acid or pantothenic acid 3
b) Discuss monosaccharides in detail 3
c) Write a note on Vitamin-A **or** Vitamin-D 3
d) Draw the structure of arachidonic acid 2
e) Write salient features of lipid digestion 1
6. a) Write a short note on Vitamin-K **or** Vitamin-E 3
b) Differentiate between oils and fats 3
c) Write a note on Double Helix structure of DNA 3
d) Explain laws of thermodynamics 2
e) Define Iodine value 1
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