

(3 Hours)

(Total Marks: 70)

N.B.: 1) All questions are compulsory.

- Q.1. a) Draw structure using Haworth projection formula for α -D-fructose. 1
 b) Draw structure using Fisher projection formula for D-xylose. 1
 c) Define anabolism. 1
 d) Give name and draw the structure of any one aromatic amino acid with three-letter code. 1
 e) Draw structure any one phospholipid. 1
 f) Draw the structure of coenzyme form of thiamine. 1
 g) Rickets is caused due to the deficiency of 1
 h) Name a Thymidylate synthase inhibitor. 1
 i) Note the changes in K_m and V_{max} values during the non-competitive inhibition of enzyme. 1
 j) Define epimer and draw structure of C-4 epimer of glucose. 2
 k) Explain enzyme induction and repression for regulation of enzyme activity. 2
 l) Explain the effect of temperature and P^H on enzyme activity. 2
- Q.2. a) Give detail account on β -plated structure of protein. 3
 b) Explain Michaelis - Menten equation. 3
 c) Justify the statement 'ATP is considered as energy rich source'. 3
 d) Write note on digestion of proteins. 2
- Q.3. a) Compare starch and cellulose in terms of structure and function. 3
 b) Explain biochemical role of Nicotinamide or Pantothenic acid. 3
 c) Describe enzyme compartmentation system for regulation of enzyme activity. 3
 d) Enumerate silent features for digestion and absorption of carbohydrates. 2
- Q.4. a) Classify amino acids based on chemical nature with example (structures not required). 3
 b) Write a note on triacylglycerides. 3
 c) Explain biochemical function of Riboflavin or folic acid. 3
 d) Explain energetically favourable reaction. 2
- Q.5. a) Explain competitive inhibition using Michelis Menten and Lineweaver Burk plot. 3
 b) Explain biochemical role of Ascorbic acid. 3
 c) Discuss the first and second law of thermodynamics. 3
 d) Write note on denaturation of protein. 2
- Q.6. a) Explain in detail Vitamin - D or Vitamin - A. 3
 b) Write reaction catalysed and name of an inhibitor for the following enzymes (Any Two) 3
 i) Dihydrofolate reductase iii) DNA polymerase
 ii) Monoamine oxidase iv) HMG CoA reductase
 c) Write detail classification of carbohydrate with examples of each class (Structures not required) 3
 d) Differentiate saturated and unsaturated fatty acids. 2