

(3 Hours)

[Total Marks: 80]

- N.B.** 1) Q.No. 1 is **compulsory**.
2) Attempt any **3** questions from Q.No. 2 to 6.

- Q1. Answer the following (any 4):- [20]
a. What are Vitamins? Explain the role of vit D in calcium metabolism.
b. What are the various non-covalent interactions in biomolecules.
c. What are peptide bonds? explain its nature and relevance in a biomolecules.
d. Explain the First Law of Thermodynamics.
e. Explain the effect of pH on enzyme activity.
- Q2. Give structure and functions of the following: [20]
a. tRNA
b. Hemoglobin
c. Insulin
d. Starch
- Q3. a. What are enzymes? How does the enzyme work? Add a note on an enzyme which is not protein in nature. [10]
b. Define : i. Activation energy [10]
ii. Transition Energy
iii. Binding Energy
iv. Vmax
- Q4. Describe the following pathways in detail: [20]
a. TCA Cycle
b. Z pathway
- Q5. a. Explain the steps involved in oxidative decarboxylation of Pyruvate to acetyl-CoA by the PDH complex. [10]
b. Explain the α and ω oxidation of fatty acids. [10]
- Q6. Write short notes on: [20]
a. Peptide Bond
b. α -helix
c. Calcitonin
d. Vit E