

**M.Sc.( Chemistry )**

**Semester - III**

**Core course – 08**

**Full marks – 70**

**Set- II**

**Answer all the questions**

1. True and False
  - i) The elements like Na, K, Ca, P, Zn etc are necessary for metabolic process taking place in human body.
  - ii) Fe<sup>3+</sup> ion are present in Vitamin B 12.
  - iii) The function of kidney is powered by Na<sup>+</sup>/K<sup>+</sup> pump.
  - iv) In ferredoxin Fe<sup>3+</sup> changes to Fe<sup>2+</sup> by accepting electrons.
  - v) Cytochromes consists of heme group with different proteins.
  - vi) Enzymes are a type of proteins with one or more peptide chain.
  - vii) There are three types of catalysis.
  - viii) The slope of the Lineweaver-Burk plot is equal to 1/K<sub>m</sub> .
  - ix) Uncompetitive inhibitor binds with already formed ES complex.
  - x) Co-enzyme A helps in transferring the acyl group from one compound to other compound.

**Group – A**

**15X4 = 60**

2. Why the Na<sup>+</sup>/K<sup>+</sup> pump is so important to the human body?
3. What is the mechanism of nitrogen fixation.
4. Discuss the structure and function of haemoglobin .

**Group – B**

5. Deduce the expression for Michael's and Menten equation for enzyme catalysis .
6. What is inhibition? Discuss reversible and irreversible inhibition .
7. Discuss the structure and biological function of thiamine pyrophosphate.
8. a) Explain transition state theory for enzymatic catalytic reaction.

b) Discuss strain and distortion in molecules in enzyme catalysis reaction.

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**Answer of question no. 01 :**

- i) True
- ii) False
- iii) True
- iv) False
- v) True
- vi) True
- vii) False
- viii) False
- ix) True
- x) True

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