

**M.Sc. (Chemistry)**

**Semester - III**

**Core course – 08**

**Full marks – 70**

**Set- III**

**Answer all the questions.**

1. Fill in the blanks:

- a) \_\_\_\_\_ helps in the utilization of Fe for Hb synthesis in the body.  
[Cu , Zn , Ca]
- b) \_\_\_\_\_ is the major intracellular cation.  
[ Na , K , Zn ]
- c) Ferredoxin consists of \_\_\_\_\_ protein.  
[Fe-Mo, Fe – Rh, Fe –S]
- d) Recombinant technology is also known as \_\_\_\_\_.  
[Genetic engineering, Cloning, all of the these]
- e) Hemocyanin and hemerythrin have dimeric \_\_\_\_\_ centre.  
[Cu & Fe, Cu & Mn, Cu & Co]
- f) Enzymes are highly \_\_\_\_\_.  
[ stereospecific, stereoselective, all of these]
- g) Coenzyme \_\_\_\_\_ involved in the transfer of atom, groups other than hydrogen.  
[ Lipoic acid, FMN, none of these ]
- h) The optimum pH for most of the enzyme is in the pH range of \_\_\_\_\_.  
[  $10^{4-7}$ ,  $10^{7-8}$ ,  $10^{4-10}$  ]
- i) The slope of the Lineweaver-Burk plot is \_\_\_\_\_.  
[ $1/K_m$ ,  $K_m/V_m$ ,  $-1/K_m$ ]

- j) \_\_\_\_\_ technique is used for immobilization of enzyme.  
[ cross-binding method,adsorption method, all of these]

**Group-A**

**15X4= 60**

Answer any four questions selecting at least one question from each group :

2. Discuss the structure and function of cytochrome c in electron transfer process in brief.
3. Discuss the function of myoglobin. How do myoglobin and haemoglobin work together ?
4. Explain how does  $\text{Na}^+/\text{K}^+$  pump maintain cell volume and cell potential.

**Group – B**

5. Write the differences between enzyme catalysis and chemical catalysis.
6. Discuss the structure and biological function of lipoic acid.
7. Discuss acid-base catalysis and covalent catalysis reaction with mechanism.
8. Discuss addition and elimination reaction and also discuss the transfer of sulphate in enzyme catalysed reaction.

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**Answer of questions no 01 :**

- a) Cu
- b) K
- c) Fe – S
- d) All of these
- e) Mg
- f) Stereospecific
- g) None of these.
  
- h)  $10^{7-8}$
  
- i) km/vm
  
- j) All of these.

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