

- b) Describe the Perutz mechanism of oxygenation of hemoglobin.
- c) Discuss the role of Ca^{2+} ion and impotent steps involved in blood clotting? (5, 5, 5)

[This question paper contains 4 printed pages.]

Your Roll No.....

आपका अनुक्रमांक.....

Sr. No. of Question Paper : 3018

I

Unique Paper Code : 2174001003

Name of the Paper : GE: Bioinorganic Chemistry

Name of the Course : B.Sc. Hons/B.Sc. Prog.

Semester : I/III/V

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
 2. Attempt four questions in all.
 3. All questions carry equal marks.
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1. a) What are the structural differences between hemoglobin and myoglobin?
 - b) Hemoglobin acts as an oxygen carrier from lungs to muscles but as carbon dioxide carrier from the tissues to lungs explain?

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- c) Write the toxic effects of Pb (II). Give the reasons for its toxicity. How can we reduce toxicity?
(5, 5, 5)
2. a) Write the toxic effects of Hg (II). Give the reasons for its toxicity? How it can be treated?
- b) Classify the elements according to their action in biological system.
- c) What is meant by essential and non-essential metal ions in biological system? Give at least two examples of each type. (5, 5, 5)
3. a) What is the function of Hemoglobin and myoglobin? What changes occurs in the heme group of hemoglobin on going from deoxy to oxy form?
- b) Name of the disease associated with the deficiency of zinc in the human body. Also list the symptoms associated with the disease.
- c) Briefly explain the role of sodium and potassium ion present in the biological system. (5, 5, 5)

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4. a) What are the metalloenzymes? Explain the Carbonic Anhydrase.
- b) Discuss the poisoning effect of carbon monoxide? Explain reason.
- c) Name the biomolecules involved in storage and transportation of iron. In which part of human body are they found? (5, 5, 5)
5. a) Describe the active transport with reference to Sodium-Potassium pump. Illustrate with a suitable diagram the working of the pump.
- b) Explain why heme group cannot function as biological oxygen carrier in the absence of globin chain.
- c) Give the biological significance of transferrin and ferritin (5, 5, 5)
6. a) Draw the oxygen saturation curves for myoglobin and hemoglobin and justify myoglobin has greater affinity for oxygen than hemoglobin.

P.T.O.