Exam.Code:0434
Sub. Code: 3459

1058

M.Sc. (Applied Chemistry) Fourth Semester
Paper – 401: Bio-Inorganic Chemistry

Time allowed: 3 Hours Max. Marks: 60

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

I. Attempt the following:-

a) What are the effects of CN and CO poisoning on hemoglobin?

b) What are Transferrins? How do they differ from Siderophores?

c) Write short note on Ferritin.

d) How Mg help in photosynthesis? (3x4)

UNIT – I

II. a) How is the functioning of haemoglobin inhibited by the ligands and metal ions?

b) How metal ions can be transported between different parts of multicellular organisms? Sketch the functioning of Na^+/K^+ ion pump in biological system. (4,8)

III. Discuss in detail model complexes of iron, cobalt and copper. (12)

UNIT – II

IV. a) Draw the structure vitamin B_{12} of coenzyme Write down the mechanism involved in the use of coenzyme B_{12} for catalyzing the hydrogen transfer reactions in a substrate.

b) What are the characteristics of enzyme catalyzed reactions? (8,4)

V. Discuss in detail the transfer of electrons from water to CO_2 in photosynthesis.(12)

UNIT – III

VI. a) Explain the structure and function of different type of cytochromes.

b) What are Transferrins? How do they differ from Siderophores? (9,3)

VII. a) Write down the structures of iron ruberidoxins, two-iron ferridoxins and four-iron ferridoxins. How do these proteins function in biological processes?

b) What do you mean by nitrogen fixation? Discuss the role of nitrogenase in biological N_2 fixation. (6,6)

P.T.O.

UNIT – IV

VIII. a) Discuss the mechanism for the catalyzed dismutation ofsuperoxide ion.

b) Give the mechanism of the functioning ofcarboxypeptidase in the hydrolysis of amide linkage. Mention the different interactions. (4,8)

IX. Explain the following:-

a) Biochemical role of Cation

b) Chelate Therapy

c) Toxic effects of antibiotics (3x4)

x-x-x