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**BR—123—2016**

**FACULTY OF SCIENCE**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2016**

**(Revised Course)**

**INORGANIC CHEMISTRY**

**Paper XIV (CH-532/1)**

**(Bioinorganic and Supramolecular Chemistry)**

**(Friday, 18-11-2016)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—Three Hours*

*Maximum Marks—50*

*N.B. :— (i) Attempt All questions.*

*(ii) Figures to the right indicate full marks.*

1. Answer any *five* of the following : 10

- (a) Explain the transport of  $Mg^{+2}$  in microbes.
- (b) Give in brief the structure and role of Ferritin.
- (c) Brief on the treatment of Zinc deficiency.
- (d) Explain the significance of platinum complexes in anticancer drugs.
- (e) Enlist the influencing factors for a very high molecular recognition.
- (f) State the differences between Haemoglobin and Myoglobin.
- (g) Describe Supramolecular catalytic pathways.
- (h) Draw the structure of Hemerythrin and give its functions.

2. Answer any *four* of the following : 10

- (a) State the characteristics of a supramolecule.
- (b) Give the structure and function of vitamin- $B_{12}$ .

P.T.O.

- (c) Describe the cation-receptor supramolecular catalysis.
- (d) Explain the role of transferrin.
- (e) Discuss gold and its complexes as antiarthritic drugs.
- (f) Sketch and explain photoinduced energy transfer process.
3. Answer any *two* of the following : 10
- (a) Describe the co-operative effect shown by Haemoglobin.
- (b) Discuss Tetrahedral recognition. Explain with suitable example.
- (c) Give the metabolic pathways of cisplatin in human body.
4. Attempt any *two* of the following : 10
- (a) Explain the anion receptor supramolecular catalysis.
- (b) Describe the mechanism of sodium-pump.
- (c) Give the structure and working of chlorophyll.
5. (A) Choose the correct alternatives : 5
- (i) The symptom of Insulin resistance is due to the deficiency of :
- (a) Co (b) Ni
- (c) Cr (d) V
- (ii) 18[crown]6 exactly recognises ..... ion.
- (a) K<sup>+</sup> (b) Na<sup>+</sup>
- (c) Li<sup>+</sup> (d) H<sup>+</sup>
- (iii) Host-guest relationship is indicated by .....
- (a) Supramolecules (b) Nanomolecules
- (c) Co-ordinate molecules (d) Ionic compounds

(iv) Compounds of ..... plays an important role in Nitrogenesis.

(a) Fe (b) Mo

(c) Zn (d) Cu

(v) Osteoporosis is due to the deficiency of .....

(a) Fe (b) Vit-D

(c) Ca (d) Cu

(B) Write brief notes on any *two* :

5

(a) Mercury toxicity

(b) Supramolecular devices

(c) Corrin nucleus.