

Roll No. ....

76057

**M.Sc. 3rd Semester Chemistry  
Examination-December, 2015**

**INORGANIC SPECIAL-III**

**Paper : CH-503 P-XIII**

**Time : 3 hours                      Max. Marks : 80**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

**Note : Q. No. 1 is compulsory. Attempt five questions in all, selecting one question from each Section (A-D).**

1. Answer the following in short :
- (a) Give biological roles of copper in brief.    2
  - (b) Why do you mean by metal-protein and metalloprotein ?    2
  - (c) What is the role of calcium in hormone release ?    2
  - (d) What are the molecular moieties present in a DNA molecule ?    2

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(b) Explain the bonding of zinc in carbonic anhydrase. Write the reactions given by this enzyme.    8

**SECTION - D**

8. (a) Explain the atmospheric structure with height.    8

(b) Write a short note on green-house effect.    8

9. (a) How ozone is depleted in the atmosphere and what are its effects ?    8

(b) Give the toxic effects of NO<sub>x</sub> and SO<sub>x</sub> gases on living systems.    8

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- (e) How DNA molecules are co-ordinated with metal ions? 2
- (f) How chlorophyll molecules absorb light from solar system? 2
- (g) How iron is stored in ferritin? 2
- (h) Give coordination sites in an cobalt coenzyme. 2

#### SECTION - A

2. (a) Mention in brief some inorganic drugs used for the treatment of various diseases. 10
- (b) What do you mean by contaminating, beneficial and essential trace elements? Name the elements failing in these categories. 6
3. (a) Explain briefly the calcium role in muscle contraction. 8
- (b) How metal ions are responsible to stabilize the nucleotide structures. 8

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#### SECTION - B

4. (a) How myoglobin molecules differ from hemoglobin's? Give structure and bonding of iron in these molecules. 10
- (b) Give three model compounds that mimic like hemoglobin. 6
5. (a) How iron is transferred by transferrin in living systems? 8
- (b) Explain in brief the biological roles of siderophores. 8

#### SECTION - C

6. (a) Give the structure and bonding of superoxide dismutase enzyme. 8
- (b) How cytochrome P-450 differs from other cytochromes? Explain the enzymatic functions of cytochrome P-450. 8
7. (a) Describe the enzymatic reactions of B<sub>12</sub> coenzymes. 8

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