* R F - 3 5 6 1 - 6 2 / 1 0 0 *

RF-3561-62

M. Sc. (Part - II) Examination

April / May – 2010

Inorganic Chemistry : Paper - II

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M. Sc. - 2**

Name of the Subject :

☛ **INORGANIC CHEMISTRY - 2**

☛ Subject Code No. : **3 5 6 1** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answer all questions.

(3) Figures to the right hand side of each question indicate full marks.

(4) Give neat and clean diagramwherever applicable.

1 (a) What are Primary Air pollutants? Discuss their sources and relative contribution to air pollution. **12**

(b) What are characteristics of textile waste water? Describe the treatment that is given before the effluent comes out from the textile unit.

(c) Explain green house effect.

OR

1 (a) What are aerosols? Give sources, concentrations, particle size, physical and physiological effects of particulate matter. **12**

(b) Explain role of Lead and chromium in industrial waste waters.

(c) What do you understand by acid rain ? How it forms? Discuss the ill-effects of acid rains.

2 (a) Describe the cooperativity in haemoglobin. Suggest the mechanism of cooperativity **12**

(b) What are metalloenzymes? Describe its action site and coordination environment with two examples.

(c) Justify `Zinc' is recognized as essentil element in biological system?

OR

2 (a) What is chlorophyll? Write some features of chlorophyll which enhances its photo synthyetic property. **12**

(b) What are rubredoxins? Give the structure of rubredoxins.

(c) Why myoglobin has greater affinity for oxygen than heamoglobin and reverse is true for carbon diooxide.

3 (a) What are ceramics? Give various raw materials used for manufacturing of ceramis. **12**

(b) Explain the term refractory. Explain fusion temperature and porosity with reference to refractories?

(c) What are enamels? Name raw materials with their characteristics for manufacturing enamels, give its uses.

OR

3 (a) What is clay? Give property of clay? What is plastic index? **12**

(b) What do you understand by PCE with reference to refractories ? What is spelling? ? How it can be reduced?

(c) Explain the terms:

(i) Glazzing

(ii) Porcelain

(iii) Optical Fibres.

4 (a) Describe radiation source in atomic absorption spectroscopy. Why a separate lamp is required to determine each element in AAS. **12**

(b) What is chromatography? Give its importance and distinguished between paper and column chromatography.

(c) Give the principle of gas chromats - graphic separation. Discuss in brief detectors used in gas chromatographic technique.

OR

4 (a) Show how TLC is superior to other chromatographic techniques. Give the various applications of thin layer chromatography. **12**

(b) What is gas chromatographic technique? Discuss in detail Van Demeter equation useful in gas chromatographic technique of separation.

(c) What are radiation source and detectors used in atomic absorption spectroscopy?

5 (a) What are phosphatic Fertilizers? What is rock phosphate? Write a method to prepare super phosphate of lime. **12**

(b) What do you mean by micronutrients? Give the name of various - micronutrients. How deficiency of any four such micronutrients can be minimized?

(c) Write a short note on soilless cultivation.

OR

5 (a) What is mixed fertilizers? Write merits and demerits of mixed fertilizers. **12**

(b) What is hydroponics? Discuss about the types of culture and advantages and disadvantages of hydroponics.

(c) Explain potassium equilibrium in soils. State the sources of K in soils. Discuss potassium chloride as a fertilizer.

6 (a) Describe in brief galvanic corrosion in metals with appropriate examples. How that can be minimized? **10**

(b) What is metallic corrosion? How it differs from erosion? Show corrosion can lead to many difficulties.

(c) Describe in brief:

(i) Purification of metals, and

(ii) Alloying of metal.

As a method to prefvent corrosion of metal.

OR

6 (a) Name different forms of corrosion. Discuss in brief about uniform attach of metallic corrosion. **10**

(b) What is polarization?
Explain:

(i) concentration polarization and

(ii) Activation polarization.

(c) Show how inhibitors affect corrosion? Write note on cathodic protection with suitable examples.