



NCD-003-010201 Seat No. _____

M. Sc. (Sem. II) (CBCS) Examination

April / May - 2017

C-201 : Inorganic Chemistry

Faculty Code : 003

Subject Code : 010201

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All Questions are compulsory.
(2) All questions carry equal marks.

1 Answer the following : (any seven) **14**

- (a) Discuss isotropic 'g' value in ESR.
- (b) Discuss Hyperfine splitting in ESR.
- (c) Define heme and globin.
- (d) Discuss the toxicity of Arsenic in our body.
- (e) Write short note on cationic exchangers.
- (f) Discuss the limitations of ESR spectroscopy.
- (g) Explain use of essential elements in our body.
- (h) Draw the structure of Porphyrin.
- (i) How do essential trace element works.
- (j) Why $B(CH_3)_3$ is an organometallic compound but $B(OCH_3)_3$ is not?

2 Answer the following : (any two) **14**

- (a) Write note on Physiology of blood.
- (b) Give the classification of pi-bonded OMC of transition metals.
- (c) Write note on application of Ion Exchange Chromatography.

- 3** Answer the following : (any two) **14**
- (a) Write note on the role of Iodine in activity of Thyroid hormones.
 - (b) Discuss the experimental Technique of Ion exchange Chromatography for the separation of the following :
 - (i) Cobalt and Nickel
 - (ii) Cadmium and Zinc
 - (c) How many ESR line do you expect in H-atom : Explain
- 4** Answer the following : **14**
- (a) Discuss the physical properties of η^2 -alkene OMC of transition metals
 - (b) Discuss the ESR spectrum of H_2^+ .
- 5** Answer the following : (any two) **14**
- (a) Define Metalloporphyrines and discuss the structure of hemoglobin and explain its function as an oxygen carriers.
 - (b) Discuss the role of bulk metal in biological process.
 - (c) Write note on Instrumentation and the work of different parts of ESR instrument (ESR Techniques).
 - (d) Discuss the preparative methods for the synthesis of σ -bonded MOC of transition metals.
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