



Seat No. _____

HN-003-1102001

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

April - 2023

C - 201 : Inorganic Chemistry

Faculty Code : 003

Subject Code : 1102001

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

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

- (a) Classify Organometallic compound.
- (b) How ESR spectroscopy is useful?
- (c) Give the example of η^5 - pentahepto π -bonded OMC.
- (d) Discuss the work of toxic element in our body.
- (e) Name useful cationic Ion exchangers.
- (f) Discuss the role of Dithiooxamide in inorganic analysis.
- (g) Name essential ultra-trace metals and non-metals present in our body.
- (h) Write the reaction for the synthesis of strong basic cation exchange resin.
- (i) Discuss the limitations of ESR spectroscopy.
- (j) Give the difference between isotropic 'g' value and anisotropic 'g' value in ESR spectroscopy.

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

- (a) Discuss the preparative methods of η^2 -alkene OMC of transition metals.
- (b) Discuss the role of oxygen carriers in Biological System.
- (c) Discuss the bonding and structure of π -bonded OMC of transition metals.

- 3 Answer the following : 14
- (a) Write short note 'g' value and factors effecting it in ESR spectroscopy.
- (b) Discuss the preparation and use of following reagents in Inorganic analysis.
- (1) Diphynile carbazone
- (2) α -benzoinoxime

OR

- 3 Answer the following : 14
- (a) Write note on the role of Iodine in activity of Thyroid hormones.
- (b) Discuss the ESR spectrum of $\text{CH}_3\cdot \left(I = \frac{1}{2} \right)$.

- 4 Answer the following : 14
- (a) Discuss the role of bulk elements in Human Body.
- (b) Discuss the chemical properties of σ -bonded OMC of transition metals.

- 5 Answer the following : 14
- (a) Discuss the preparation and use of following reagents in Inorganic analysis
- (1) DMG
- (2) Cupferron.
- (b) Give the classification of σ -bonded OMC of transition metals.
- (c) Discuss the preparative methods of η^3 -allyl OMC of transition metals.
- (d) Write short note on ESR technique (instrumentation).