

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2021 (OLD COURSE)
INORGANIC CHEMISTRY(CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figure to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

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- Que-1(A) **Answer The Following Questions.** (04)
A. Discuss anisotropic 'g' value in ESR
B. Discuss selection rules for ESR spectrum
- Que-1(B) **Answer The Following Questions. (Any Two Out of Three)** (10)
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
- Que-2(A) **Answer The Following Questions.** (04)
A. Define heme and globin
B. Discuss the toxicity of lead in our body
- Que-2(B) **Answer The Following Questions. (Any Two Out of Three)** (10)
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_2^+ ion : Explain
- Que-3(A) **Answer The Following Questions.** (04)
A. Write short note on anionic exchangers
B. Discuss the limitations of ESR spectroscopy
- Que-3(B) **Answer The Following Questions. (Any Two Out of Three)** (10)
A. Discuss essential elements in biological system with advantage and disadvantage.
B. Discuss 'g' value and factors affecting it
C. Define Metalloporphyrines and discuss the structure of hemoglobin and explain its function as an oxygen carriers.
- Que-4(A) **Answer The Following Questions.** (04)
A. Explain use of essential trace elements in our body
B. Draw the structure of Porphyrin
- Que-4(B) **Answer The Following Questions. (Any Two Out of Three)** (10)
A. Discuss the physical properties of η^2 -alkene OMC of transition metals
B. Discuss the ESR spectrum of CH_3
C. Write note on Dithiozone, preparation and role of it in inorganic analysis
- Que-5(A) **Answer The Following Questions.** (04)
A. Discuss the role of Cupferron in inorganic analysis
B. Why $B(CH_3)_3$ is an organometallic compound but $B(OCH_3)_3$ is not?
- Que-5(B) **Answer The Following Questions. (Any Two Out of Four)** (10)
A. Discuss the role of bulk metal in biological process
B. Write note on Instrumentation and the work of different parts of ESR instrument (ESR Techniques)
C. Discuss the preparative methods for the synthesis of σ -bonded MOC of transition metals
