

B.Sc. Semester - 6 (CBCS) Examination

May/June-2021 (OLD COURSE)

INORGANIC AND INDUSTRIAL CHEMISTRY(CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figures 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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- Q. 1 (A) Answer the following question. (04)
(1) Calculate the microstates and find Term Symbol for $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ and $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$.
- Q.1 (B) Answer the following questions. (Any two) (10)
(1) Calculate Microstates in detail for p^2 -orbital.
(2) Explain Hole-pigeon diagram for d^1 -orbital.
(3) Determine the allowed spectral terms for d^2 -electronic configuration.
- Q. 2 (A) Answer the following question. (04)
(1) What is Jahn Teller effect? Discuss in detail Jahn Teller in octahedral and tetrahedral ligand field.
- Q. 2 (B) Answer the following questions. (Any two) (10)
(1) Discuss the absorption spectrum of aqueous solution of Ti^{3+} ion.
(2) Discuss the Orgel diagram for d^3 and d^7 system in tetrahedral and octahedral ligand field.
(3) Explain the splitting of d-orbitals Square planar complex.
- Q. 3 (A) Answer the following question. (04)
(1) Explain Gouy's balance method with its limitations.
- Q. 3 (B) Answer the following questions. (Any two) (10)
(1) Explain diamagnetism and derive the equation for diamagnetic momentum.
(2) Give the classification of oil and explain solvent extraction method for extraction of oil.
(3) What is meaning of Iodine value and saponification value and how Iodine value and saponification value are determined.
- Q. 4 (A) Answer the following question. (04)
(1) Explain Hot process for manufacturing of Soap.
- Q. 4 (B) Answer the following questions. (Any two) (10)
(1) What is anionic detergent? Give the name of different methods of preparation of anionic detergent and discuss Alfol process in detail.
(2) Give the Comparison between Soaps and Detergents.
(3) Discuss in detail various types of soap.
- Q. 5 (A) Answer the following question. (04)
(1) Explain chemically oxygen demand (COD) in detail with procedure.
- Q. 5 (B) Answer the following questions. (Any two) (10)
(1) Write note on Green House Effect.
(2) Explain thermal pollution, what are their sources and how it effects on environment?
(3) Explain BOD in detail with procedure involved in it.
