647510 BSCchMJ205x-3C Seat No :_____

B.Sc. Semester - 3 (NEP-2020) Examination

OCT/NOV-2025

CHE: Intermediate Chemistry-205 (Major-5)

Time: 2:00 Hours Marks:50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1 Answer any two out of three questions. (5 marks each) (10)

1. Write only electronic configuration of first transition series and explain Ionization potential for d-block elements briefly.
2. Which equation is used to calculate magnetic momentum of metal due to only spin rotation? Calculate magnetic moments of Ti^{+3}, Cr^{+2}, Fe^{+2} and Mn^{+2}.
3. Discuss the applications of Lanthanides & their compounds.

Que.2 Answer any two out of three questions. (5 marks each) (10)

1. Write three syntheses of alcohols.
2. Write three methods of preparation of nitrile compounds and two chemical properties of nitriles.
3. Explain elimination-addition mechanism of aryl halide with sodamide and liq. ammonia.

Que.3 Answer any two out of three questions. (5 marks each) (10)

1. What is condensed phase rule? Draw the phase diagram of Lead-Silver eutectic system. Explain curves and eutectic point briefly.
2. What is Gibbs phase rule? Define phase, component and degree of freedom with two examples each.
3. Define Azeotropes. Discuss distillation of non-ideal solutions of two liquids having positive and negative deviations from Raoult's law.

Que.4 Answer any two out of three questions. (5 marks each) (10)

1. Explain preparation, chemical properties and structure of Xenon trioxide by valence bond and VSEPR approach.
2. Discuss Fries rearrangement with mechanism and two applications.
3. At 15°C, an aqueous solution of succinic acid containing 1 g in 100 ml is in equilibrium with an ethereal solution which has 0.15 g in 100 ml. Calculate partition coefficient. What will be the concentration of ethereal solution of succinic acid which is in equilibrium with an aqueous solution which has 0.3 g in 100 ml?