

B.Sc. Semester - 4 (NEP-2020) Examination

March/April-2025

CHE: Intermediate Chemistry-208 (Major-8)

Time: 2:00 Hours

Marks: 50

Instructions:

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

-
- Que-1 Answer the following (Any Two) (10)
1. Discuss the Zeise salt: $K[PtCl_3(C_2H_4)]$.
 2. What is ligand? Explain π -acid ligands and ambidentate ligands.
 3. What is stereo isomerism? Explain optical isomerism in octahedral complexes.
- Que-2 Answer the following (Any Two) (10)
1. What is point group of trans-1,2-dichloroethylene? Explain multiplication table for it.
 2. Prove that in eclipsed ethane, $S_n^k \neq E$ but $S_n^{2k} = E$.
 3. Give the point group and order of the point group (h) of following molecules:
(i) BF_3 (ii) $POCl_3$ (iii) Benzene (iv) Ethylene (v) Allene
- Que-3 Answer the following (Any Two) (10)
1. Explain Carnot cycle in detail.
 2. Explain entropy change during the mixing of ideal gas.
 3. Derive: Gibbs Helmholtz equation.
- Que-4 Answer the following (Any Two) (10)
1. Discuss the stability and symmetry of different conformation of cyclohexane.
 2. Derive Clausius - Clapeyron equation.
 3. Explain method for hydrogenation of Oil and Fat.
- Que-5 Answer the following (Any Two) (10)
1. Explain Werner's theory and give failure of theory.
 2. What is plane of symmetry? Explain different types of planes of symmetry.
 3. Calculate the amount of heat in Joule absorbed by heat engine working with two temperature 368 K & 288 K. The work obtained is 898 J.
 4. Explain (i) Acid value (ii) Iodine value (iii) R.M. value (iv) Saponification value
