

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

March/April-2026

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.

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- Que.1 Answer the following question. (Any two) (10)
- (1) Discuss the application of co-ordination compounds in various fields.
 - (2) Explain Werner's theory with limitations.
 - (3) Explain bonding and structure of Zeise salt.
- Que.2 Answer the following question. (Any two) (10)
- (1) Construct multiplication table for C_{2v} with suitable example.
 - (2) Differentiate σ_v , σ_h and σ_d .
 - (3) Prove that $S_n^{2n}=E$ when n is odd by giving the example of eclipsed ethane.
- Que.3 Answer the following question. (Any two) (10)
- (1) Explain Carnot's cycle with its operation in detail.
 - (2) Derive the equation for entropy change in mixing of ideal gas.
 - (3) Derive Gibbs Helmholtz equation.
- Que.4 Answer the following question. (Any two) (10)
- (1) Explain Dry Process for hydrogenation of oil.
 - (2) Give difference between Enantiomers and Diastereomers.
 - (3) Derive Van't Hoff isotherm equation.
- Que.5 Answer the following question. (Any two) (10)
- (1) (a) Write a note on Ionization isomerism. (03)
 - (b) Give any two uses of organo magnesium compound. (02)
 - (2) (a) Give one difference between C_n and S_n . (03)
 - (b) Deduce point group of CO_2 and allene. (02)
 - (3) Two moles of an ideal gas are allowed to expand reversibly and isothermally at 300 K from pressure of 1 atm to 0.1 atm. What is the change in Gibbs free energy ($R = 1.987 \text{ cal K}^{-1}\text{mol}^{-1}$)
 - (4) Discuss Saponification value and acid value for oil & fats.
