

**B.Sc. Semester - 4 (CBCS) Examination**  
**March/April-2026 [NEW COURSE]**  
**Chemistry-C401(Core)**

**Time: 2:30 Hours****Marks: 70****Instructions:**

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

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- Que.1(A) Answer the following question. (04)  
(1) Explain bonding and structure of Zeise's salt.
- Que.1(B) Answer the following questions. (Any two) (10)  
(1) Discuss Werner's theory with limitations.  
(2) Explain toxicity of Arsenic and Mercury.  
(3) Discuss; i) Ambidentate ligand ii) Chelate ligand
- Que.2(A) Answer the following question. (04)  
(1) Write any four preparation methods of mono carboxylic acids.
- Que.2(B) Answer the following questions. (Any two) (10)  
(1) Discuss Aldol condensation reaction with mechanism.  
(2) Give synthesis of Ethyl acetoacetate.  
(3) Explain Clemmensen Reduction with mechanism.
- Que.3(A) Answer the following question. (04)  
(1) Derive the equation  $C_p - C_v = R$
- Que.3(B) Answer the following questions. (Any two) (10)  
(1) Discuss Ostwald's Viscometer.  
(2) Write note on Joule Thomson Effect.  
(3) Explain variation of enthalpy with temperature.
- Que.4(A) Answer the following question. (04)  
(1) Discuss applications of coordination compounds.
- Que.4(B) Answer the following questions. (Any two) (10)  
(1) Discuss bonding and structure of Ferrocene.  
(2) Explain Beckmann rearrangement with mechanism.  
(3) Write a note on Drop Weight Method for surface tension.
- Que.5(A) Answer the following question. (04)  
(1) Explain different types of process in thermodynamics.
- Que.5(B) Answer the following questions. (Any two) (10)  
(1) Discuss the roll of hemoglobin in biological system.  
(2) Explain Nucleophilic addition reaction of aldehyde & ketone with Grignard reagent.  
(3) Discuss application of dipole moment.

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