

Class test

Chemistry (H) Inorganic Chemistry IV

Maximum Marks = 20

Time = 1hr

Attempt any 5 questions in all all questions carry equal marks (5x4)

Q1. $\text{Ni}(\text{CO})_4$ is monomer but the analogous cobalt compound is a dimer, Why?

Q2. What is meant by synergic effect? How does it account for formation of Carbonyl complexes of transition metals in low oxidation states?

Q3. Cyclopentadienyl rings in the ferrocene have aromatic character but cyclopentadiene itself has no such character. Explain.

Q4. Give two reactions of ferrocene to show it is more reactive than benzene.

Q5. The V-C bond lengths in $[\text{V}(\text{CO})_6]$ and $[\text{V}(\text{CO})_6]^-$ are 200pm and 193 pm respectively . Explain.

Q6. What you meant by hapticity in organometallic chemistry? Give examples of ligands with hapticity of 2,3,4,5,6?

Q7. Using 18 – electron rule, deduce the probable number of carbonyl ligands in the following:

- 1) $\text{HCo}(\text{CO})_n$ 2) $\text{W}(\eta^6\text{-C}_6\text{H}_6)(\text{CO})_n$ 3) $\text{Co}_4(\text{CO})_n$ 4) $\text{Fe}_2(\text{CO})_n$

Q8. Explain the working of Ziegler natta catalyst diagrammatically.

Q9. Explain the working of Wilkinson catalyst diagrammatically.

Q10. Define the following

- (a) Chemisorption
- (b) Heterogeneous catalysis
- (c) Turn over number
- (d) Poison

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