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SUBJECT CODE NO: - BB-2514
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. (CBCGS) (Pattern 2022) T.Y SEM VI
Examination November / December 2025
Chemistry-XXII Inorganic Chemistry

[Time: 1:30Hours]**[Max. Marks: 40]**

Please check whether you have got the right question paper.

N. B

- 1) Attempt all questions.
- 2) Illustrate your answers with suitable labelled diagrams wherever necessary.

Q1 Multiple Choice Questions**10**1. Which of the following is *not* an example of a mononuclear metal carbonyl?

- | | |
|-----------------|--------------------|
| a) $[mn(co)_5]$ | b) $[fe(co)_5]$ |
| c) $[co(co)_5]$ | d) $[Mn_2CO]_{10}$ |

2. When a catalyst is used in the reaction, which of the following changes?

- | | |
|-------------------------|----------------------|
| a) Heat of reaction | b) Activation energy |
| c) Equilibrium constant | d) None of the above |

3. Which of the following is an intrinsic semiconductor?

- | | |
|--------|---------|
| a) Si | b) ZnO |
| c) NiO | d) NaCl |

4. The trans effect is observed in

- | | |
|----------------------------|---------------------------------|
| a) square planar complexes | b) Octahedral complexes |
| c) Tetrahedral complexes | d) Trigonal bipyramid complexes |

5. Zeolites are primarily composed of

- | | |
|-------------------------|------------------------|
| a) Silicon and oxygen | b) carbon and hydrogen |
| c) sulphur and nitrogen | d) metal oxide |

6. The Coordination number of Ni in $Ni(CO)_4$ is:

- | | |
|------|------|
| a) 4 | b) 5 |
| c) 3 | d) 6 |

7. In n-type semiconductor, the majority charge carriers are

- | | |
|-----------------------------|--------------|
| a) Holes | b) electrons |
| c) Both electrons and holes | d) protons |

8. Which catalyst is used in the hydrogenation of olefins?

- | | |
|-----------------------------|-------------------------|
| a) Fischer-Tropsch catalyst | b) Grubbs catalyst |
| c) Ziegler-Natta catalyst | d) Wilkinson's catalyst |

9. Which of the following ligands has the lowest trans effect?

- | | |
|-----------|-----------|
| a) NO | b) NH_3 |
| c) CN^- | d) H_2O |



10. inorganic solid is ?

- a) Benzoic acid
- c) Rock

- b) Naphthalene
- d) Acetic anhydride

Q2 Solve any two of the following:

10

- 1) Explain the role of CO as a π acid donor ligand in metal carbonyls.
- 2) What are zeolites? Describe their framework structure.
- 3) Explain the chelate effect and its role in the stability of metal complexes.
- 4) What is superconductivity? Discuss the applications of superconductors.

Q3 Write short notes on (any four)

20

- 1) Heterogeneous catalysis
- 2) Hydrothermal method
- 3) Concept of capacity
- 4) p-type semiconductor
- 5) NCE diagrams
- 6) Classification of metal carbonyls

