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**SUBJECT CODE NO: - YY-2321**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. (CBCGS) (Pattern 2022) S.Y SEM IV**  
**Examination April / May - 2024**  
**Chemistry-XII Inorganic Chemistry**

[Time: 1:30 Hours]

[Max. Marks: 40]

Please check whether you have got the right question paper.

N. B

- 1) All questions are compulsory.
- 2) Draw diagram whenever necessary.
- 3) Use Only blue or black pen for writing.
- 4) Figure to the right indicate full marks.

**Q1 Choose the right and correct answer of the following****10**

- 1) According to Werner's theory of Co-Ordination compound.
  - a) Primary valency is ionisable
  - b) Secondary valency is ionisable
  - c) Primary and secondary valencies are ionisable
  - d) Neither primary nor secondary valency is ionisable
- 2) Which of the following Cannot be a ligand?
  - a)  $\text{Ni}^{2+}$
  - b)  $\text{Cl}^-$
  - c)  $\text{H}_2\text{O}$
  - d)  $\text{NH}_3$
- 3) Which of the following is true for the formation of stable bonds according to valence bond theory?
  - a) Greater overlapping between atomic orbitals
  - b) Close proximity between two atoms.
  - c) Pairing of electrons having Opposite spins.
  - d) All of the above
- 4) How many unpaired electrons are present in  $[\text{COF}_6]^{3-}$  complex?
  - a) 4
  - b) Zero
  - c) 2
  - d) 3
- 5) Who invented the galvanic cell?
  - a) Galvani and Volta
  - b) Henry Cavendish
  - c) Joseph priestley
  - d) Antoine Lavoisier



- 6) Which of the following is used as an indicator in the titration of a strong acid and weak base?
- Methyl orange
  - Phenolphthalein
  - Thymol blue
  - Fluorescein
- 7) EDTA have \_\_\_\_\_ binding sites and therefore it is called as multidentate ligand
- Six
  - Five
  - Four
  - Seven
- 8) Nickel dimethyl glyoxime is \_\_\_\_\_
- Double salt
  - Complex compound
  - Chelate
  - Inner salt
- 9) Hybridization in square planer complex is \_\_\_\_\_.
- $dsp^2$
  - $sp^3$
  - $sp^3d$
  - $sp^2$
- 10) \_\_\_\_\_ Diagram is used to study general relation between redox activity and Bronsted activity
- Latimer diagram
  - Frost diagram
  - Pourbaix diagram
  - None of above

**Q2 Solve any three of the following**

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- Describe in detail werner's theory of co-ordination.
- What are assumptions of valence bond theory?
- What is CFSE? What are the factor affecting CFSE?
- Define Electrochemical series, what are application of electrochemical series?
- Write in detail about Redox titration.

**Q3 Solve any five of the following**

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- Explain Ionisation Isomerism with suitable example.
- What are limitation of crystal field theory.
- Write a note on Spectrochemical series.
- Describe Frost diagram in brief
- Write a note on standard solution
- What is chelation therapy? Give its example.
- What are basic requirements of titration reaction.