

Total No. of Printed Pages: 2

**SUBJECT CODE NO: - Y-2011**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. S.Y (Sem-IV)**  
**Examination March / April - 2023**  
**Chemistry Paper-X (Inorganic Chemistry)**

[Time: 1:30 Hours]

[Max. Marks: 50]

Please check whether you have got the right question paper.

N. B 1) All Questions are compulsory

Q1 a) Explain the variable oxidation States shown by elements of First transition series. 10  
 Discuss the trends of ionisation Potential and atomic radii among first transition series.

b) Explain WERNER'S Theory With its salient Features & As experimental Verification 10  
 with two Suitable examples.

**OR**

a) What are Solvents? Explain the types of solvents with Suitable examples. 10

b) Describe Bronsted - Lowry concept of acid-base with reference to Following Points. 10  
 1) Definition. 2) Conjugate acid-base pairs

Q2 a) What are Lanthanides? Give the electronic configuration of Lanthanide series. 10  
 Discuss occurrence & Position in periodic

b) Define Isomerism, and classify them, discuss any two types of Isomerism with 10  
 Suitable Examples.

**OR**

c) Write Short Notes on (any four) 20

- 1) Lanthanide contraction
- 2) Magnetic properties of 3d Series elements:
- 3) Assumptions of Valence Bond Theory
- 4) Water as a non-aqueous solvent.
- 5) Arrhenius concept of acid & bases.
- 6) Lux-Flood concept of acid & base.

## Q3 Multiple Choice Questions

- 1) The electronic configuration of Copper is  
a)  $3d^9 4s^2$     b)  $3d^{10} 4s^1$     c)  $3d^8 4s^2$     d)  $3d^{10} 4s^2$
- 2) The oxidation state of Ni in  $[\text{Ni}(\text{CD})_4]$  is  
a) 0    b) 1    c) 4    d) 3
- 3) Maximum Magnetic Moment is exhibited by  
a)  $\text{Cu}^{++}$     b)  $\text{Co}^{++}$     c)  $\text{Fe}^{+++}$     d)  $\text{Cr}^{+++}$
- 4) Which ion is diamagnetic  
a)  $\text{V}^{++}$     b)  $\text{Cr}^{++}$     c)  $\text{SC}^{+++}$     d)  $\text{Ti}^{++}$
- 5) Which of the Following is protogenic Solvent  
a)  $\text{CH}_3\text{COOH}$     b)  $\text{H}_2\text{O}$     c)  $\text{CH}_3\text{OH}$     d) Pyridine
- 6) Which of the following Lewis acid?  
a)  $\text{AlCl}_3$     b)  $\text{NCl}_3$     c)  $\text{NH}_3$     d)  $\text{PCl}_3$
- 7) Which of the following is not Lanthanide element?  
a) Pr    b) Pm    c) Gd    d) Th
- 8) Atomic Radii of first transition Series is  
a) increases    b) Decreases    c) Remains same    d) None of These
- 9) EAN OF  $[\text{Co}(\text{NH}_3)_6]^{3+}$  is  
a) 35    b) 37    c) 36    d) 54
- 10) According to Lux – Flood concept an acid is  
a) Proton donor    b) e- donor    c) Accepts Oxide ion    d) None of these