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SUBJECT CODE NO: - 2011
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. S.Y (Sem-IV)
EXAMINATION JUNE/JULY 2022
Chemistry Paper-X
(Inorganic Chemistry)

[Time: 01:53 Hours]   [Max.Marks: 50]

Please check whether you have got the right question paper.
N.B   1) All questions are compulsory.

Q.1   a) What are transition elements? Give the electronic configuration of first transition series. 10
       b) Explain Arrhenius concept of acids and bases with suitable example & discuss its   10
          limitations.
                                    OR
       c) What are Actinides? Explain oxidation states of actinides.   10
       d) What is isomerism? Discuss any two types of isomerism with suitable example?   10

Q.2   a) Discuss in detail valence bond theory with its limitations and applications.   10
       b) Explain ammonolysis and redox reactions in liquid ammonia.   10
                                    OR
       c) Write short notes on (any four)   20
          1) General features of d-block elements
          2) Lanthanide contraction
          3) Acid-base reaction in liquid SO_2
          4) Postulates of Werner's theory
          5) Bronsted-Lawry concept of acids and bases
          6) Types of ligands

Q.3   Multiple Choice Questions   10

          1) The oxidation states of Ni in $[Ni(Co)_4]$ is
             a) 0   b) +1   c) +2   d) +3

          2) Which of the following is a Lewis acid?
             a) NH_3 b) NCl_3 c) $AlCl_3$ d) PCl_3

          3) Lanthanides are called
             a) 5f series elements   b) 4f series elements
             c) 3d series elements   d) 4d series elements

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4) Which of the following is non protic solvent
   a) H_2O b) CH_3COOH c) H_2SO_4 d) SO_2

5) General electronic configuration of first transition series
   a) $3d^{1-10}\,4s^2$ b) $4d^{1-10}5s^2$
   c) $3d^{1-5}\,4s^2$ d) $4f^{1-14}6s^2$

6) Ethylene diamine is
   a) Monodentate ligand   b) Tridentate ligand
   c) Bidentate ligand   d) Hexadentate ligand

7) According to Werner's theory, primary valency is
   a) Ionisable valency   b) Non ionisable valency
   c) Variable valency   d) Additive valency

8) The conjugate acid of NH_2^- is
   a) NH_3 b) NH_2OH c) NH_4^+ d) N_2H_4

9) Which of the following element shows +1 oxidation state
   a) Zn b) Mn c) Cr d) V

10) The hybridization of $[FeF_6]^{3-}$ is
    a) dsp^2 b) sp^3 c) d^2sp^3 d) sp^3d^2

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