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SUBJECT CODE NO:- B-2011
FACULTY OF SCIENCE & TECHNOLOGY
B.Sc. S.Y (Sem-IV)
Examination November/December- 2022
Chemistry Paper-X
(Inorganic Chemistry)

[Time: 1:30 Hours]

[Max. Marks:50]

Please check whether you have got the right question paper.

- N.B
- i) Attempt all questions.
 - ii) Draw neat and well-labelled diagrams wherever necessary.
- Q.1
- a) Explain the variable oxidation states shown by elements of first transition series. Discuss trends of Ionisation potential and atomic radii among first transition series. 10
 - b) Explain amonlysis and redox reaction in liquid ammonia. 10
- OR
- c) What are lanthanides? Discuss in detail Lanthanide contraction with its consequences and limitations. 10
 - d) What are solvent? Classify them. Explain types of solvent with proper examples. 10
- Q.2
- a) Discuss the salient feature of Valence Bond Theory with its limitation and applications. 10
 - b) Explain Arrhenius concept of acids and bases with suitable examples. Discuss limitations and applications of this concept. 10
- OR
- c) Write short notes (Any four) 20
 - 1) Magnetic properties of first transition series.
 - 2) Exceptional behavior of Chromium and copper regarding electronic configuration.
 - 3) Oxidation states of Actinides.
 - 4) The Lax Flood concept of acids and bases
 - 5) Geometrical isomerism in coordination compounds.
 - 6) Salient features of Werner's theory

Q.3 Multiple Choice Questions.

10

- General electronic configuration of lanthanide is
a) $4f^{a-14} 5d^1 6s^2$ b) $4f^{1-14} 5d^1 6s^2$ c) $3d^{1-10} 4s^2$ d) All of these
- Diamagnetic substances are
a) Attracted by magnetic field c) Show no moment on magnetic field
b) Repelled by magnetic field d) All of these
- Transition element are also called as
a) s- block element
b) p-block element
c) d- block element
d) f-block element
- Which of the following is not a Lewis base?
a) CN^- b) $AlCl_3$ c) ROH d) NH_3
- Which one of these acts as both acid and base?
a) SO_4^{2-} b) H_3^+ c) HSO_4^- d) CO_3^{2-}
- The geometry obtained by dsp^2 hybridization is
a) Linear
b) Tetrahedral
c) Square planer
d) Octahedral
- Who among the following framed Valence bond theory
a) Pauling b) Orgel c) Van Vleek d) Nyholm
- Solvents which have a greater tendency to accept proton is called
a) Photophilic solvent
b) Protogenic solvent
c) Amphiprotic solvent
d) Aprotic solvent
- The most common oxidation state of actinides is
a) +2 b) +4 c) +6 d) +3
- Which is the geometry of $[Ni(CN)_4]^{2-}$ ion?
a) Tetrahedral b) Square planer c) Triangular d) linear