

Intermediate Examination 2020
Sundarban Mahavidyalaya
Semester - IV, CEQA
Paper - CC-10 (Inorganic)

Answer any 10 Questions

1. 10 Dq value does not depends on
a) Geometry of crystal b) valency of metal c) Types of ligand d) all.
2. Among the following complexes, the one which shows 2nd CFSE value
a) $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ b) $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ c) $[\text{Mn}(\text{H}_2\text{O})_6]^{3+}$ d) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$
3. The CFSE for Octahedral $[\text{CoCl}_6]^{4-}$ is 18,000 cm^{-1} . The CFSE value of tetrahedral $[\text{CoCl}_4]^{2-}$ will be
a) 18000 cm^{-1} b) 16000 cm^{-1} c) 8000 cm^{-1} d) 20,000 cm^{-1}
4. The magnetic moment of 1.73 BM is shown by
a) $[\text{Cu}(\text{NH}_3)_4]^{2+}$ b) $[\text{Ni}(\text{CN})_4]^{2-}$ c) TiCl_4 d) $[\text{CoCl}_6]^{4-}$
5. The complex $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ (high spin). Calculate the CFSE
a) 2.6 Δ_0 b) 1.2 Δ_0 c) 1.2 Δ_0 d) 2.6 Δ_0
6. The hybridization of the complex $[\text{Co}(\text{H}_2\text{O})_6]$ is
a) sp^3d^2 b) d^2sp^3 c) sp^3 d) dsp^2
7. Why in Octahedral complexes used t_{2g} and e_g whereas in tetrahedral used t_2 and e
a) tetrahedral has Centre of symmetry b) Octahedral has Centre of symmetry
c) Octahedral does not have Centre of symmetry d) None
8. Transition metals are generally coloured because
a) They absorbed electromagnetic radiations b) Their penultimate d orbitals are fully filled
c) d-d transition d) none
9. Transitional metal complex act as a
a) Lewis acid b) Lewis base c) Neutral d) None
10. Cu^{2+} complexes are coloured and Zn^{2+} complexes are colourless due to
a) presence of unpaired e in Cu^{2+} b) presence of unpaired e in Zn^{2+}
c) absence of unpaired e on Zn^{2+} d) a & c.
11. Which of the following has highest no. of unpaired e's.
a) $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$ b) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ c) $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ d) $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$
12. Which one of the following Octahedral complexes are diamagnetic?
a) $[\text{CoF}_6]^{3-}$ b) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$ c) $\text{K}_3[\text{Fe}(\text{CN})_6]$ d) $\text{K}_4[\text{Fe}(\text{CN})_6]$