



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL



Pre-MidTerm-Test 2026-27

Class : XII

CHEMISTRY (043) SET -1

Duration: 1 Hr

Date : 20/07/2026

Max. Marks: 25

Admission No.:

Roll No.:

General Instructions:

- There are 13 questions in all. All questions are compulsory.
- This question paper has three sections: Section A, Section B and Section C.
- All the sections are compulsory.
- Section A contains five questions of 1 mark each, out of which one question is assertion and reasoning type question.
- Section B contains four questions of two marks each, Section C contains four questions of three marks each.
- There is no overall choice. Use of calculators is not allowed.

SECTION-A

- Which of the following has no unpaired electrons? 1
(a) Mn^{2+} (b) Sc^{3+} (c) V^{3+} (d) Cr^{2+}
- The transition metals show property of 1
(a) variable oxidation states. (b) tendency to form complexes.
(c) formation of coloured compounds. (d) all of these.
- Primary and secondary valency of Cu in $[\text{Cu}(\text{NH}_3)_4\text{Cl}_2] \text{SO}_4$ are 1
(a) 4, 1 (b) 1, 6 (c) 6, 1 (d) 1, 4
- The complex ions $[\text{Co}(\text{NH}_3)_5(\text{NO}_2)]^{2+}$ and $[\text{Co}(\text{NH}_3)_5(\text{ONO})]^{2+}$ are called 1
(a) Ionization isomers (b) Linkage isomers
(c) Co-ordination isomers (d) Geometrical isomers
- The following question consists of two statements. While answering the question you are required to choose any one of the following four responses. 1
(a) Both Assertion and reason are true and reason is correct explanation of assertion.
(b) Assertion and reason both are true but reason is not the correct explanation of assertion.
(c) Assertion is true, reason is false.
(d) Assertion is false, reason is true.

Assertion (A): Zn, Cd and Hg are not considered true transition elements.

Reason (R): They have filled d-orbitals in their ground state as well as in their common oxidation states.

SECTION – B

6. (i) Zinc atom has low melting point. Explain 2
(ii) Why do the transition elements exhibit higher enthalpies of atomisation?
7. (i) The transition elements generally show paramagnetic character. Why? 2
(ii) The melting point of chromium is very high in the first series. Explain why?
8. Differentiate double salt and complex compound with examples. 2
9. Write the IUPAC name of the following.
- (i) $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})_2]\text{Cl}_2$ (ii) $\text{K}_2 [\text{Zn}(\text{CN})_4]$ 2

SECTION C

10. Draw the structure of (i) MnO_4^{2-} (ii) $\text{Cr}_2\text{O}_7^{2-}$ (iii) CrO_4^{1-} 3
11. Describe the oxidising action of $\text{K}_2\text{Cr}_2\text{O}_7$ and write the ionic equations for its reaction with:
(i) Fe^{2+} (ii) Sn^{2+} (iii) $\text{C}_2\text{O}_4^{2-}$ 3
12. Explain the shape, magnetic character and colour of the following compound based on VBT.
 $[\text{Fe}(\text{CN})_6]^{4-}$ ($\text{Fe} = 26$) 3
13. On the basis of the following observations made with aqueous solutions, assign the primary linkage of metal and write the structure formula in the following compounds: 3

Formula	Moles of AgCl precipitated per mole of the compounds with excess AgNO_3
(i) $\text{FeCl}_2 \cdot 4\text{NH}_3$	1
(ii) $\text{NiCl}_3 \cdot 6\text{H}_2\text{O}$	3
(iii) $\text{NiCl}_6 \cdot 2\text{NH}_3$	2
(iv) $\text{CoCl}_3 \cdot 4\text{NH}_3$	1
(v) $\text{PtCl}_4 \cdot 6\text{NH}_3$	4

-----ALL THE BEST-----