

d-BLOCK ELEMENTS

Std. XII
CHEMISTRY

Time: 1½
Max.Marks: 75

PART - I

Choose and write the correct answer:

(15 × 1 = 15)

- Formation of coloured ions is possible when compounds containing
 - unpaired electrons
 - paired electrons
 - lone pair of electrons
 - none of the above
- The colour of $Ti(H_2O)_6^{3+}$ ion is due to _____
 - d - d transition
 - presence of water molecules
 - Inter atomic transfer of electrons
 - None of the above
- Paramagnetism is the property of _____
 - paired electrons
 - completely filled electronic subshells
 - unpaired electrons
 - completely vacant electronic subshells
- The correct outer most electronic configuration of copper atom is _____
 - $3d^{10}4s^1$
 - $3d^{10}4s^2$
 - $3d^94s^2$
 - $3d^54s^24p^4$
- Silver salt used in photography is
 - AgCl
 - AgNO₃
 - AgF
 - AgBr
- Excess of sodium hydroxide reacts with zinc to form
 - ZnH₂
 - Na₂ZnO₂
 - ZnO
 - Na₂[Zn(OH)₄]
- For a transition metal ion, the effective magnetic moment in BM is given by the formula _____
 - $\sqrt{n(n-1)}$
 - $\sqrt{n(n+1)}$
 - $\sqrt{n(n+2)}$
 - $\sqrt{n(n+1)(n+2)}$
- Which of the following has the maximum number of unpaired electrons?
 - Mg²⁺
 - Ti³⁺
 - V³⁺
 - Fe²⁺
- Which transition element shows highest oxidation state?
 - Sc
 - Ti
 - Os
 - Zn
- In the first transition series, the highest oxidation state is exhibited by
 - Mn
 - Ni
 - Fe
 - Cr
- Which one of the following has the least magnetic moment?
 - Cu²⁺
 - Ni²⁺
 - Co²⁺
 - Fe²⁺
- Philosopher's wool is
 - ZnCO₃
 - ZnO
 - ZnSO₄
 - A mixture of Zn and CO

13. Silver coins are
- | | |
|------------------|-----------------------|
| a Ag - Cu alloys | b Ag - Ni alloys |
| c Ag - Zn alloys | d Ag - Cu - Zn alloys |
14. In acidic solution $K_2Cr_2O_7$ exists as
- | | |
|--|--------------------------------------|
| a $Cr_2O_7^{-2}$ and has orange colour | b CrO_4^{-2} and has yellow colour |
| c $Cr_2O_7^{-2}$ and has yellow colour | d CrO_4^{-2} and has orange colour |
15. Lunar caustic is
- | | |
|-------------------|---------------------|
| a Silver oxide | b Silver nitrate |
| c silver chlorate | d mercuric chlorate |

PART - II

Answer all the questions:

(10 × 3 = 30)

16. How are 'd'- block elements classified?
17. Why transition elements form complexes?
18. Why Zn^{+2} salts are white while Ni^{2+} salts are coloured?
19. A substance is found to have a magnetic moment of 3.9 BM. How many unpaired electrons does it contain?
20. Write short note on aluminio thermic process.
21. What is chrome plating?
22. What is calomel? How is it prepared?
23. What is spitting of silver?
24. Mention the uses of Potassium di chromate
25. What is matte? What are its constituents?

PART - III

Answer all the questions:

(4 × 5 = 20)

26. a Explain chromyl chloride test b Write the action of dil and conc. HNO_3 with (1) Zn (2) Ag.
27. Explain briefly the extraction of copper from its chief ore
28. Name the ores of gold. Explain how it is extracted from its alluvial gravel
29. Give an account of the extraction silver from its ore

PART - IV

Answer all the questions:

(10 × 1 = 10)

30. (a) What is purple of Cassius? How is it prepared? Mention its uses.
 (b) A compound of Chromium, in which Chromium exists in +6 oxidation state. Its chief ore (A) on roasting with molten alkali gives compound (B). This compound on acidification gave compound (C). Compound (C) on treatment with KCl gave compound (D) Identify the compounds A, B, C, and D. Explain with proper chemical reactions.