

CLASS: XIth DATE:

Solutions

SUBJECT: CHEMISTRY

DPP No.: 9

Topic:-THE D-AND F-BLOCK ELEMENTS

| 1 | (ď |
|---|----|
| - | |

Most of the transition metal cations are coloured.

2 **(a)**

Ag(CN)₂ does not contain unpaired electrons.

3 **(d)**

It is a fact.

4 (d)

In MnSO₄ .4H₂O, Mn is present as Mn²⁺

$$Mn^{2+} = 3d^5 \qquad 4s^0$$

In CuSO₄.5H₂O, Cu is present as Cu²⁺

(Unpaired electrons =1)

In $FeSO_4.6H_2O$, Fe is present as Fe^{2+}

(Unpaired electrons =4)

In NiSO₄.6H₂O Ni is present as Ni²⁺

$$Ni^{2+} = \begin{array}{c|c} 3d^8 & 4s^0 \\ \hline 1 | 1 | 1 | 1 | 1 | 1 \end{array}$$

(Unpaired electrons = 2)

(Unpaired electrons = 5)

Since, paramagnetic character \propto unpaired electrons.

Thus, CuSO₄.5H₂O has the lowest degree of paramagnetism among the given at 298 K.

5 **(a**)

HgS is insoluble in hot dil.HNO₃.

6 (c)

A number of molybdic acids are known H₂MoO₄,H₆Mo₇O₂₄.

7 **(a)**

$$\text{Hg}_2\text{Cl}_2 \xrightarrow[\text{sublimation}]{\Delta} \text{Hg} + \text{HgCl}_2$$

8 **(b)**

It is a fact.

9 **(a)**

AgBr decomposes on exposure to light.

10 (c

Hg is volatile metal.

11 **(a**)

In amalgam, Hg has zero oxidation state.

12 **(c**

Haematite contains SiO_2 (acidic) non-fusible impurity and this basic flux $CaCO_3$ is used.

$$CaCO_3 \rightarrow CaO + CO_2$$
,

 $CaO + SiO_2 \longrightarrow CaSiO_3$

13 **(a)**

Cu forms $Cu(NH_3)_4^{2+}$ complex.

14 **(d)**

It is a reason for given fact.

15 **(b)**

Permanent magnets are generally made up of alloys of Al, Ni and Co

16 **(d**)

ZnS is white. (Follow II gp. qualitative analysis).

17 (c)

$$Hg_2cl_2 + 2NH_4OH \rightarrow Hg + Hg(NH_2)Cl + NH_4Cl + 2H_2O$$

Black

18 **(a)**

The chemical formula for ammonium molybdate is $(NH_4)_2MoO_4$.

19 **(a**)

It is a reason for the given fact.

20 (a)

The electronic configuration of $_{62}\mathrm{Sm}^{3+}$ is $4f^4$ and that of $_{66}\mathrm{Dy}^{3+}$ is $4f^9$. The colour of f^n and f^{14-n} are often identical

| ANSWER-KEY | | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|--|
| Q. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Α. | D | A | D | D | A | С | A | В | A | С | |
| | | | | | | | | | | | |
| Q. | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| A. | A | C | A | D | В | D | C | A | A | A | |
| | | | | | | | | | | | |

