DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutio

SUBJECT : CHEMISTRY
DPP No. : 1

Topic :- THE D-AND F-BLOCK ELEMENTS

1 **(c)**
Many of the d-block (transition) elements and their compounds act as catalyst . Catalytic property is probably due to the utilisation of $(n-1)$ d-orbitals or formation of interstitial compounds.

2 **(a)**
$2HgCl_2 + SnCl_2 \longrightarrow SnCl_4 + Hg_2Cl_2$ (white)
$Hg_2Cl_2 + SnCl_2 \longrightarrow SnCl_4 + Hg_2$ (Grey)

3 **(b)**
Mohr salt is $FeSO_4.(NH_4)_2SO_4.6H_2O$
$\therefore$ It is double salt having $FeSO_4$ and $(NH_4)_2SO_4$.

4 **(a)**
Mn in MnO_4^- has +7 and Cr in CrO_2Cl_2 has +6 oxidation state, the highest for Mn and Cr respectively.

5 **(c)**
Lanthanides are the 14 elements of IIIB group and sixth period (At. no.=58 to 71) that are filling $4f$-subshell of antipenultimate shell from 1 to 14 . Actually, they are placed below the Periodic Table in horizontal row as lanthanide series.

6 **(a)**
When the quenched steel is heated to temperature below red hot and then allowed to cool slowly. It becomes soft. This process is known as annealing

7 **(d)**
It is a use of chrome alum.

8 **(c)**
We know that by reducing auric chloride by stannous chloride, the colloidal solution of gold is obtained. It is known as purple of cassius

9 **(b)**
$2CuCl_2 + SO_2 + 2H_2O \longrightarrow Cu_2Cl_2 + 2HCl + H_2SO_4$

10 **(d)**
C, Fe, Mg react with hot water to give H_2.

11 **(b)**
Tungsten is the highest m.p. metal (3410°C).

12 **(d)**
Mercurous chloride (calomel) is prepared by heating $HgCl_2$ and Hg in iron vessel.

$$HgCl_2 + Hg \xrightarrow{\Delta} Hg_2Cl_2$$

It can also be prepared by the reduction of mercury (II) chloride by tin (II) chloride in a limited quantity.

$2HgCl_2 + SnCl_2 \xrightarrow{\Delta} Hg_2Cl_2 + SnCl_4$

13 **(a)**
It is a fact.

14 **(b)**
$SO_3^{2-} + H_2O \longrightarrow SO_4^{2-} + 2H^+ + 2e$

$MnO_4^- + 8H^+ + 5e \longrightarrow Mn^{2+} + 4H_2O$.

15 **(c)**
It is a fact.

16 **(d)**
The element having unpaired electron is paramagnetic. More the number of unpaired electrons, more will be paramagnetic character.
Mn (25)=$1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^5$
∴ 5 unpaired electrons
Fe (26)= $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^6$
∴ 4 unpaired electrons
Ni (28)= $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^8$
∴ 2 unpaired electrons
Cu (29)= $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^{10}$
∴ 1 unpaired electrons
∴ Mn has maximum and Cu has least paramagnetic property.

17 **(b)**
It is a reason for the given fact.

18 **(c)**
The cupellation step in Parke's process is used to purify Ag from lead.

19 **(c)**
It is a fact.

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