

Topic :- THE D-AND F-BLOCK ELEMENTS

- 1 (a)
White vitriol is $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$.
- 2 (a)
No in iron complex has +1 oxidation number.
- 3 (b)
 Mn^{2+} is most stable as it has half-filled *d*-orbitals.
- 4 (c)
 $\text{ZnCl}_2 \cdot 2\text{H}_2\text{O} \xrightarrow{\Delta} \text{Zn(OH)Cl} + \text{HCl} + \text{H}_2\text{O}$
 $\text{Zn(OH)Cl} \rightarrow \text{ZnO} + \text{HCl}$
- 5 (c)
 $3\text{Fe(CN)}_2 + 4\text{Fe(CN)}_3 \rightarrow \text{Fe}_4[\text{Fe(CN)}_6]_3$ or $\text{Fe}_7\text{C}_{18}\text{N}_{18}$
Prussian blue
- 6 (a)
 CrO_4^{2-} has no unpaired *d* – electron.
- 7 (a)
 La(OH)_3 is more basic than Lu(OH)_3 . This is because ionic size of La^{3+} ion is more than Lu^{3+} ion
- 8 (d)
Cerium is commonly used in manufacture of alloys of lanthanide. It is also used in dyeing cotton or fabrics, for scavenging oxygen and sulphur from other metals and also used as catalyst.
- 9 (a)
—do—
- 10 (d)
It is a reason for the given fact.
- 11 (d)
It is a fact.
- 12 (b)
Zn does not show corrosion.
- 13 (c)
The process is called hardening of steel and it develops hard and brittle nature in steel.

- 14 **(c)**
Lowest m.p. among all metals is of Hg (-38.9°C).
- 15 **(d)**
The temperature of the slag zone in the metallurgy of iron using blast furnace is $800-1000^{\circ}\text{C}$.
- 16 **(b)**
The phenomenon is called spitting of Ag.
- 17 **(c)**
 Cu_2O has completely filled d – orbitals in Cu^+ and thus, does not show ($d - d$) transition.
- 18 **(c)**
 $\text{Hg}(\text{OH})_2$ does not exist.
- 19 **(d)**
 K_2HgI_4 , a colourless complex, is formed,
 $4\text{KI} + \text{HgCl}_2 \rightarrow \text{K}_2\text{HgI}_4 + 2\text{KCl}$
- 20 **(a)**
The atomic weight of Co, Ni and Fe are 59.90, 58.60, 55.85 respectively. Therefore, $\text{Co} > \text{Ni} > \text{Fe}$ is the correct sequence of atomic weights

PE

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

PE