

**Topic :- THE D-AND F-BLOCK ELEMENTS**

- 1 (d)  
All are facts about Hg.
- 2 (a)  
The most abundant transition metal is Fe.
- 3 (a)  
All those inner-transition elements having +2 oxidation state, changes to +3, and act as reducing agents. While those having +4 tend to change to +3 and act as oxidizing agents. Therefore,  $\text{Np}^{4+}$  acts as an oxidizing agent
- 4 (a)  
Oxide of Mn in its intermediate oxidation state *i.e.*, +4 is  $\text{MnO}_2$ . This is amphoteric in character.
- 5 (c)  
Silver nitrate decomposes to silver nitrite on heating above its melting point ( $212^\circ\text{C}$ ).  
$$2\text{AgNO}_3 \xrightarrow{> 212^\circ\text{C}} 2\text{AgNO}_2 + \text{O}_2$$
  
On heating above  $450^\circ\text{C}$  (red hot), silver nitrate decomposes to metallic silver, oxide of nitrogen and oxygen.  
$$2\text{AgNO}_3 \xrightarrow{> 450^\circ\text{C}} 2\text{Ag} + 2\text{NO}_2 + \text{O}_2$$
- 6 (a)  
 $\text{Cu}^{2+}$  has one unpaired electron.
- 7 (d)  
 $\text{ZnSO}_4$  forms soluble zincates.
- 8 (d)  
Thermite is  $\text{Fe}_2\text{O}_3 + \text{Al}$  used for welding.
- 9 (a)  
 $\text{Cu}_2\text{O}$  is called ruby copper.
- 10 (c)  
 $\text{Np}$  and  $\text{Pu}$  in  $\text{NpO}_3^+$  and  $\text{PuO}_3^+$  oxocations show +7 oxidation state which are not so stable
- 11 (a)  
Ammonia soda process is for manufacture of  $\text{Na}_2\text{CO}_3$ .

- 12 **(a)**  
Steel is the most important commercial variety of iron having percentage of carbon 0.25 – 2 (between cast iron wrought iron).
- 13 **(c)**  
 ${}_{28}\text{Ni}^{2+}$  has two unpaired electrons,  ${}_{22}\text{Ti}^{3+}$ , has one unpaired electron.
- 15 **(a)**  
Ionization energy increases along the period and therefore, they have lesser values than *p*-block and more value of *IE* than *s*-block elements.
- 17 **(a)**  
Cu, Ag, Au group of element are called coinage metals as these are used in minting coins.
- 18 **(a)**  
Cadmipone is  $\text{CdS} + \text{BaSO}_4$ .
- 19 **(c)**  
Correct order of melting points is  
 $\text{Mn}(1246^\circ \text{C}) < \text{Ti}(1668^\circ \text{C}) < \text{V} \approx \text{Cr}(1907^\circ \text{C})$
- 20 **(d)**  
Actual composition of chromite ore( $\text{FeCr}_2\text{O}_4$ ) is  $\text{FeO} \cdot \text{Cr}_2\text{O}_3$ . In  $\text{FeO}$ , the oxidation state of Fe is +2 while in  $\text{Cr}_2\text{O}_3$ , the oxidation state of Cr is +3.

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

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