

## DPP

DAILY PRACTICE PROBLEMS

CLASS : XI<sup>th</sup>  
DATE :

Solutio

SUBJECT : CHEMISTRY  
DPP No. : 3

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

- 1 (b)  

$$\text{HgO} \xrightarrow{\Delta} \text{Hg} + \frac{1}{2}\text{O}_2$$
- 2 (a)  
 Cast iron has the highest percentage of carbon. It contains 2 to 4.5 % of carbon along with impurities such as sulphur, silicon, phosphorus etc. It is the least pure form of iron.
- 3 (a)  
 Argentite is  $\text{Ag}_2\text{S}$ .
- 4 (d)  

$$2\text{HgS} + 3\text{O}_2 \rightarrow 2\text{HgO} + 2\text{SO}_2,$$

$$2\text{HgO} + \text{HgS} \rightarrow 3\text{Hg} + \text{SO}_2$$
- 5 (a)  
 Transuranic elements start after uranium and begin with Np (Neptunium)
- 6 (a)  
 All these compounds are less soluble in water and only  $\text{Zn}(\text{OH})_2$  is soluble in  $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$  due to formation of tetramine zinc (II) complex.  

$$\text{Zn}^{2+} + 4\text{NH}_4\text{OH} \rightarrow [\text{Zn}(\text{NH}_3)_4]^{2+} + 2\text{H}_2\text{O}$$
- 7 (d)  
 Transition metals can form ionic or covalent compounds and their melting and boiling points are high. Their compounds are generally coloured and they usually exhibit variable valency.
- 8 (b)  
 Both  $\text{KMnO}_4$  and  $\text{FeCl}_3$  are oxidant and thus, no reaction.
- 9 (b)  
 Alloy is a homogeneous mixture of two or more metals. Mercury forms amalgams (alloy) with gold, silver and tin. But it does not react with iron or platinum.
- 10 (b)  
 Purple of Cassius is the trade name for gold sol. in water.
- 12 (d)  
 Gd(64)  
 $[\text{Xe}]_{54}$
- $$4f^7$$

↑	↑	↑	↑	↑	↑	↑	↑
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$$5d^1$$

↑						↓↑
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- All the electrons of  $4f$ -orbital are unpaired, hence stable.  
 Thus, Gd(64) has EC as  $[\text{Xe}]_{54} 4f^7 5d^1 6s^2$   
 Instead of  $[\text{Xe}]_{54} 4f^8 6s^2$
- 13 (c)  
 The electronic configuration of mercury (80) is  $[\text{Xe}]4f^{10}, 5d^{10}, 6s^2$ . Its  $d$ -subshell is completely filled, thus it prevents the overlapping of  $d$ -orbitals ( $d - d$  overlapping).



Hence, it is liquid metal at room temperature.

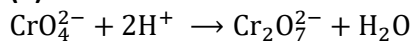
14

(c)

Azurite is the ore of copper, its molecular formula is  $\text{Cu}(\text{OH})_2 \cdot 2\text{CuCO}_3$ .

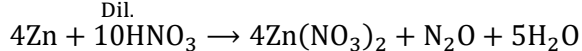
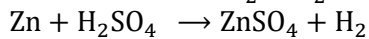
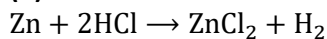
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(b)



16

(d)



Thus,  $\text{NO}_3^-$  ions are reduced to  $\text{N}_2\text{O}$  whereas in first two reactions  $\text{H}^+$  is reduced to  $\text{H}_2$ .

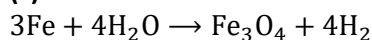
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(b)

Siderite —  $\text{FeCO}_3$ , calcite (or limestone) —  $\text{CaCO}_3$ , silver glance(or argentite) —  $\text{Ag}_2\text{S}$ , fool's gold (or iron pyrites) —  $\text{FeS}_2$ .

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(c)

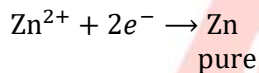


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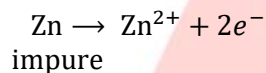
(d)

In the electrolytic refining of zinc, anode is made up of impure zinc while a strip of pure zinc acts as cathode. An acidified solution of zinc sulphate acts as electrolyte. When electricity is passed, following reactions occur.

At cathode



At anode



### ANSWER-KEY

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