

INORGANIC CHEMISTRY

s-BLOCK MISCELLANEOUS

1. LIST-I contains compounds and LIST-II contains reaction [JEE(Advanced) 2022]

LIST-I

- (I) H_2O_2
(II) $\text{Mg}(\text{OH})_2$
(III) BaCl_2
(IV) CaCO_3

LIST-II

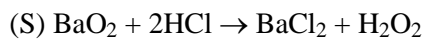
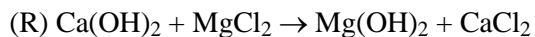
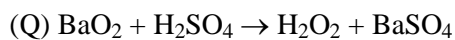
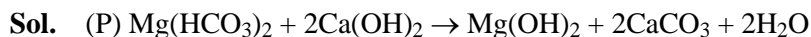
- (P) $\text{Mg}(\text{HCO}_3)_2 + \text{Ca}(\text{OH})_2 \rightarrow$
(Q) $\text{BaO}_2 + \text{H}_2\text{SO}_4 \rightarrow$
(R) $\text{Ca}(\text{OH})_2 + \text{MgCl}_2$
(S) $\text{BaO}_2 + \text{HCl} \rightarrow$
(T) $\text{Ca}(\text{HCO}_3)_2 + \text{Ca}(\text{OH})_2 \rightarrow$

Match each compound in LIST – I with its formation reaction(s) in LIST-II, and choose the correct option

- (A) I \rightarrow Q; II \rightarrow P; III \rightarrow S; IV \rightarrow R
(B) I \rightarrow T; II \rightarrow P; III \rightarrow Q; IV \rightarrow R
(C) I \rightarrow T; II \rightarrow R; III \rightarrow Q; IV \rightarrow P
(D) I \rightarrow Q; II \rightarrow R; III \rightarrow S; IV \rightarrow P
2. Fe^{3+} is reduced to Fe^{2+} by using - [JEE(Advanced) 2015]
- (A) H_2O_2 in presence of NaOH
(B) Na_2O_2 in water
(C) H_2O_2 in presence of H_2SO_4
(D) Na_2O_2 in presence of H_2SO_4
3. The pair(s) of reagents that yield paramagnetic species is / are : [JEE(Advanced) 2014]
- (A) Na and excess of NH_3
(B) K and excess of O_2
(C) Cu and dilute HNO_3
(D) O_2 and 2-ethylanthraquinol

SOLUTIONS

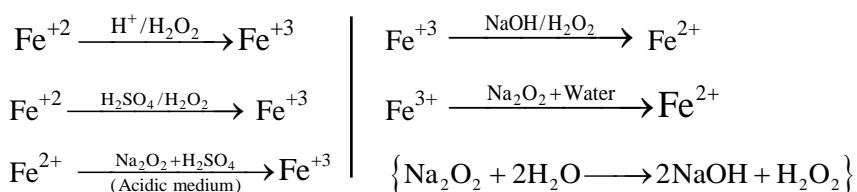
1. Ans. (D)



2. Ans. (A, B)

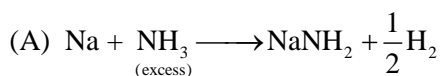
Sol. In acidic medium H_2O_2 oxidises Fe^{+2} to Fe^{+3}

In alkaline solution H_2O_2 reduces Fe^{+3} to Fe^{+2}



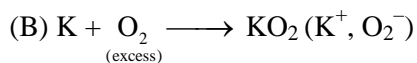
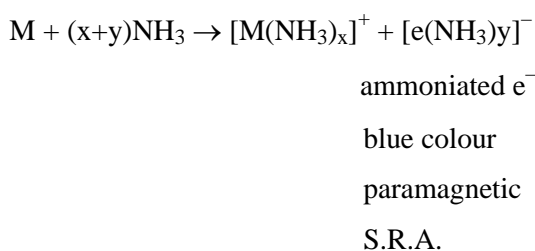
3. Ans. (A, B, C) / (B, C)

Sol. If ammonia considered as a gas then reaction will be :

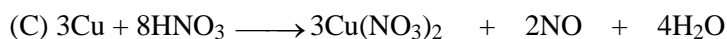


($\text{NaNH}_2 + \frac{1}{2}\text{H}_2$ are diamagnetic)

If ammonia considered as a liquid then reaction will be



Paramagnetic



Paramagnetic

Paramagnetic

