

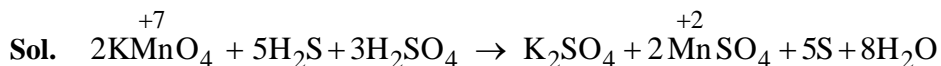
INORGANIC CHEMISTRY

d-BLOCK

1. H_2S (5 moles) reacts completely with acidified aqueous potassium permanganate solution. In this reaction, the number of moles of water produced is x , and the number of moles of electrons involved is y . The value of $(x + y)$ is _____. [JEE(Advanced) 2023]
2. Which of the following combination will produce H_2 gas? [JEE(Advanced) 2017]
- (A) Zn metal and $\text{NaOH}(\text{aq})$
(B) Au metal and $\text{NaCN}(\text{aq})$ in the presence of air
(C) Cu metal and conc. HNO_3
(D) Fe metal and conc. HNO_3
3. Consider the following list of reagents : [JEE(Advanced) 2014]
Acidified $\text{K}_2\text{Cr}_2\text{O}_7$, alkaline KMnO_4 , CuSO_4 , H_2O_2 , Cl_2 , O_3 , FeCl_3 , HNO_3 and $\text{Na}_2\text{S}_2\text{O}_3$.
The total number of reagents that can oxidise aqueous iodide to iodine is

SOLUTIONS

1. **Ans. (18)**

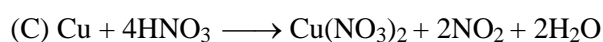
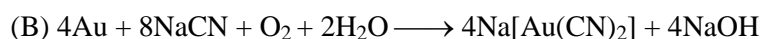


$x = 8$ (moles of H_2O produced)

$y = 14 - 4 = 10$ (number of electrons involved)

$x + y = 10 + 8 = 18$

2. **Ans. (A)**



(conc.)

(D) Formation of passive layer of Fe_2O_3 on the surface of Fe and NO_2 gas is evolved.

3. **Ans. (7)**

Sol. Acidified $\text{K}_2\text{Cr}_2\text{O}_7$, CuSO_4 , H_2O_2 , Cl_2 , O_3 , FeCl_3 , HNO_3 oxidise aq. iodide to iodine.

Alkaline KMnO_4 oxidise aq. iodide to IO_3^-

No reaction between iodide & $\text{Na}_2\text{S}_2\text{O}_3$