HYDROGEN & IT'S COMPOUND

1. NaH is an example of :
(1) Electron-rich hydride
(2) Molecular hydride
(3) Saline hydride
(4) Metallic hydride

2. The correct statements among (a) to (d) regarding H_2 as a fuel are :
(a) It produces less pollutant than petrol
(b) A cylinder of compressed dihydrogen weighs ~ 30 times more than a petrol tank producing the same amount of energy
(c) Dihydrogen is stored in tanks of metal alloys like $NaNi_5$
(d) On combustion, values of energy released per gram of liquid dihydrogen and LPG are 50 and 142 kJ, respectively
(1) b and d only (2) a, b and c only
(3) b, c and d only (4) a and c only

3. The temporary hardness of water is due to :-
(1) $Ca(HCO_3)_2$ (2) NaCl
(3) Na_2SO_4 (4) $CaCl_2$

4. The chemical nature of hydrogen preoxide is :-
(1) Oxidising and reducing agent in acidic medium, but not in basic medium.
(2) Oxidising and reducing agent in both acidic and basic medium
(3) Reducing agent in basic medium, but not in acidic medium
(4) Oxidising agent in acidic medium, but not in basic medium.

5. The metal that gives hydrogen gas upon treatment with both acid as well as base is :
(1) zinc (2) iron
(3) magnesium (4) mercury

SOLUTION

1. Ans. (3)

NaH is an example of ionic hydride which is also known as saline hydride.

2. Ans. (2)

Option (a), (b) & (c) are correct answer (NCERT THEORY BASED)

3. Ans. (1)

$Ca(HCO_3)_2$ is reponsible for temporary hardness of water

4. Ans. (2)

H_2O_2 act as oxidising agent and reducing agent in acidic medium as well as basic medium.

H_2O_2 Act as oxidant :-

$H_2O_2 + 2H^{\oplus} + 2e^{\ominus} \rightarrow 2H_2O$ (In acidic medium)

$H_2O + 2e^{\ominus} \rightarrow 2OH^{\ominus}$ (In basic medium)

H_2O_2 Act as reductant :-

$H_2O_2 \rightarrow 2H^{+} + O_2 + 2e^{\ominus}$ (In acidic medium)

$H_2O_2 + 2OH^{\ominus} \rightarrow 2H_2O + O_2 + 2e^{\ominus}$ (In basic medium)

5. Ans.(1)

$Zn + 2HCl \rightarrow ZnCl_2 + H_2 \uparrow$

$Zn + 2NaOH \rightarrow Na_2ZnO_2 + H_2 \uparrow$