**1.** The hydride ion $H^-$ is a stronger base than hydroxide ion. Which of the following reaction will occur if NaH is dissolved in water.

(1) $H^-_{aq} + H_2O_{(\ell)} \longrightarrow H_3O^+_{aq}$

(2) $H^-_{aq} + H_2O_{(\ell)} \longrightarrow OH^-_{aq} + H_{2(g)}$

(3) $H^-_{aq} + H_2O_{(\ell)} \longrightarrow$ no reaction

(4) None of these

**2.** Hydrogen peroxide is reduced by

(1) Ozone

(2) Barium peroxide

(3) Acidic solution of $KMnO_4$

(4) Lead sulphide

**3.** Water softening by Clark's process uses

(1) Calcium bicarbonate

(2) Sodium bicarbonate

(3) Potash alum

(4) Calcium hydroxide (Slaked lime)

**4.** Which of the following isotope of hydrogen is radioactive?

(1) $_1H^1$ (2) $_1H^2$ (3) $_1H^3$ (4) Both 2 & 3

**5.** Which reaction is not used in the preparation of $H_2$?

(1) Zn + NaOH $\rightarrow$ (2) Mg + NaOH $\rightarrow$

(3) Al + NaOH $\rightarrow$ (4) Be + NaOH $\rightarrow$

**6.** Which of the following is water gas shift reaction?

(1) $CO + H_2O \rightarrow CO_2 + H_2$

(2) $C + H_2O \rightarrow CO$

(3) $CO + O_2 \rightarrow CO_2$

(4) $CO + H_2 \rightarrow CH_3OH$

**7.** Which cannot be oxidised by $H_2O_2$?

(1) $Na_2SO_3$ (2) PbS

(3) KI (4) $O_3$

**8.** Which of the following reaction represents the oxidising property of $H_2O_2$?

(1) $KMnO_4 + H_2SO_4 + H_2O_2 \longrightarrow K_2SO_4 + MnSO_4 + H_2O + O_2$

(2) $K_3[Fe(CN)_6] + KOH + H_2O_2 \longrightarrow K_4[Fe(CN)_6] + H_2O + O_2$

(3) $PbO_2 + H_2O_2 \longrightarrow PbO + H_2O + O_2$

(4) None of these

**9.** Permanent hardness can be removed by addding

(1) $Cl_2$ (2) $Na_2CO_3$

(3) $CaOCl_2$ (4) $K_2CO_3$

**10.** Calgon used as water softner is?

(1) $Na_6P_6O_{18}$ (2) $Na_4P_6O_{18}$

(3) $Na_6P_4O_{18}$ (4) $Na_6P_5O_{10}$

**11.** Which is not present in clear hard water

(1) $Mg(HCO_3)_2$ (2) $CaCl_2$

(3) $MgSO_4$ (4) $MgCO_3$

**12.** What is formed when calcium carbide reacts with heavy water ?

(1) $C_2D_2$ (2) $CaD_2$

(3) $Ca_2D_2O$ (4) $CD_2$

**13.** The adsorption of hydrogen by metals is called:

(1) Dehydrogenation (2) Hydrogenation

(3) Occlusion (4) Absorption

**14.** Which of the following produces hydrolith with dihydrogen?

(1) Mg (2) Al (3) Cu (4) Ca

**15.** An ionic compound is dissolved simultaneously in heavy water and simple water. Its solubility is:

(1) Higher in heavy water

(2) Lesser in heavy water

(3) Same in both

(4) Lesser in simple water

**16.** Hydrogen can be prepared by mixing steam and water gas at 673 K in the presence of $Fe_2O_3$ and $Cr_2O_3$. This process is called:

(1) Nelson's process

(2) Serpeck's process

(3) Bosch's process

(4) Parke's process

**17.** Temporary hardness of water is due to the presence of:

(1) Magnesium bicarbonate

(2) Calcium chloride

(3) Magnesium sulphate

(4) Calcium carbonate

**18.** Metal hydrides are ionic, covalent or molecular in nature among LiH, NaH, KH, RbH, CsH, the correct order of increasing ionic character is:

(1) LiH > NaH > CsH > KH > RbH

(2) LiH < NaH < KH < RbH < CsH

(3) RbH > CsH > NaH > KH > LiH

(4) NaH > CsH > RbH > LiH > KH

**19.** Which of the following hydride is electron precise hydride?

(1) $B_2H_6$ (2) $NH_3$ (3) $H_2O$ (4) $CH_4$

**20.** The compound that gives $H_2O_2$ on treatment with dilute $H_2SO_4$ is :

(1) $PbO_2$ (2) $BaO_2.8H_2O$

(3) $MnO_2$ (4) $TiO_2$

**21.** Which of the following equation depict the oxidizing nature of $H_2O_2$?

(1) $MnO_4^- + 6H^+ + 5H_2O_2 \rightarrow 2Mn^{2+} + 8H_2O + 5O_2$

(2) $2Fe^{3+} + 2H^+ + H_2O_2 \rightarrow 2Fe^{2+} + 2H_2O + O_3$

(3) $2I^- + 2H^+ + H_2O_2 \rightarrow I_2 + 2H_2O$

(4) $KIO_4 + H_2O_2 \rightarrow KIO_3 + H_2O + O_2$

**22.** Which of the following equation depicts reducing nature of $H_2O_2$?

(1) $2[Fe(CN)_6]^{4-} + 2H^+ + H_2O_2 \rightarrow 2[Fe(CN)_6]^{3-} + 2H_2O$

(2) $I_2 + H_2O_2 + 2OH^- \rightarrow 2I^- + 2H_2O + O_2$

(3) $Mn^{2+} + H_2O_2 \rightarrow Mn^{4+} + 2OH^-$

(4) $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$



## HYDROGEN & IT'S COMPOUNDS ANSWER KEY

| Que. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ans. | **2** | **4** | **4** | **3** | **2** | **1** | **4** | **4** | **2** | **1** | **4** | **1** | **3** | **4** | **2** |
| Que. | 16 | 17 | 18 | 19 | 20 | 21 | 22 | | | | | | | | |
| Ans. | **3** | **1** | **2** | **4** | **2** | **3** | **2** | | | | | | | | |