Q1 - 25 July - Shift 2

High purity (>99.95%) dihydrogen is obtained by

(A) reaction of zinc with aqueous alkali.

(B) electrolysis of acidified water using platinum electrodes.

(C) electrolysis of warm aqueous barium hydroxide solution between nickel electrodes.

(D) reaction of zinc with dilute acid.

Space for your notes:

Q2 - 26 July - Shift 1

Reaction of $BeCl_2$ with $LiAlH_4$ gives :

(A) $AlCl_3$

(B) BeH_2

(C) LiH

(D) LiCl

(E) $BeAlH_4$

Choose the **correct** answer from options given below :

(A) (A), (D) and (E)

(B) (A) , (B) and (D)

(C) (D) and (E)

(D) (B) , (C) and (D)

Space for your notes:

Q3 - 27 July - Shift 1

Given below are two statements:

Statement I : Hydrogen peroxide can act as an oxidizing agent in both acidic and basic conditions.

Statement II: Density of hydrogen peroxide at 298 K is lower than that of D_2O.

In the light of the above statements. Choose the ***correct*** answer from the options.

(A) Both statement I and Statement II are ture

(B) Both statement I and Statement II are false

(C) Statement I is true but Statement II is false

(D) Statement I is false but Statement II is true

Space for your notes:

Q4 - 28 July - Shift 1

The metal salts formed during softening of hardwater using Clark's method are :

(A) $Ca(OH)_2$ and $Mg(OH)_2$

(B) $CaCO_3$ and $Mg(OH)_2$

(C) $Ca(OH)_2$ and $MgCO_3$

(D) $CaCO_3$ and $MgCO_3$

Space for your notes:

Q5 - 28 July - Shift 1

For kinetic study of the reaction of iodide ion with H_2O_2 at room temperature :
(A) Always use freshly prepared starch solution.
(B) Always keep the concentration of sodium thiosulphate solution less than that of KI solution.
(C) Record the time immediately after the appearance of blue colour.
(D) Record the time immediately before the appearance of blue colour.
(E) Always keep the concentration of sodium thiosulphate solution more than that of KI solution.
Choose the correct answer from the options given below :
(A) (A), (B), (C) only
(B) (A), (D), (E) only
(C) (D), (E) only
(D) (A), (B), (E) only

Space for your notes:

Q6 - 29 July - Shift 2

Given below are two statements.
Statement I : Stannane is an example of a molecular hydride.
Statement II : Stannane is a planar molecule.
In the light of the above statement, choose the most appropriate answer from the options given below :
(A) Both Statement I and Statement II are true.
(B) Both Statement I and Statement II are false.
(C) Statement I is true but Statement II is false.
(D) Statement I is false but Statement II is true.

Space for your notes:

Answer Key

Q1 (C) **Q2** (B) **Q3** (C) **Q4** (B)

Q5 (A) **Q6** (C)

Q1 (C)

High purity (>99.95%) dihydrogen is obtained by electrolysis of warm aqueous $Ba(OH)_2$ solution between Ni-electrodes

Q2 (B)

$$2BeCl_2 + LiAlH_4 \rightarrow 2BeH_2 + LiCl + AlCl_3$$

Q3 (C)

Depending on the nature of reducing agent H_2O_2 can act as an oxidising agent in both acidic as well as basic medium.

Density of D_2O = 1.1 g/cc

Density of H_2O_2 = 1.45 g/cc

Q4 (B)

Clark's Method Reaction

$$Ca(HCO_3)_2 + Ca(OH)_2 \rightarrow 2CaCO_3 + 2H_2O$$

$$Mg(HCO_3)_2 + 2Ca(OH)_2 \rightarrow 2CaCO_3 + Mg(OH)_2 + 2H_2O$$

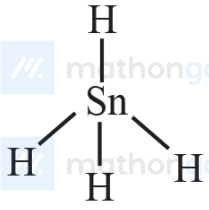
Q5 (A)

The is recorded immediately after the blue colour appears.

$Na_2S_2O_3$ is kept in limited amount.

Q6 (C)

SnH_4 is non planar molecular hydride



Tetrahedral shape, sp^3 hybridisation