Q1 2021 (01 Sep Shift 2)

Hydrogen peroxide reacts with iodine in basic medium to give :

(1) IO_4^-

(2) IO^-

(3) I^-

(4) IO_3^-

Q2 2021 (31 Aug Shift 2)

Which one of the following statements is incorrect ?

(1) Atomic hydrogen is produced when H_2 molecules at a high temperature are irradiated with UV radiation.

(2) At around 2000 K, the dissociation of dihydrogen into its atoms is nearly 8.1%.

(3) Bond dissociation enthalpy of H_2 is highest among diatomic gaseous molecules which contain a single bond .

(4) Dihydrogen is produced on reacting zinc with HCl as well as $NaOH_{(aq)}$.

Q3 2021 (31 Aug Shift 1)

The number of hydrogen bonded water molecule(s) associated with stoichiometry $CuSO_4 \cdot 5H_2O$ is ____.

Q4 2021 (31 Aug Shift 1)

Given below are two statements :

Statement $-$I: The process of producing syn-gas is called gasification of coal.

Statement $-$II: The composition of syn-gas is $CO + CO_2 + H_2(1:1:1)$

In the light of the above statements, choose the *most appropriate* answer from the options given below :

(1) *Statement* $-$I is false but *Statement* $-$II is true

(2) *Statement* $-$I is true but *Statement* $-$II is false

(3) Both *Statement* $-$I and *Statement* $-$II are false

(4) Both *Statement* $-$I and *Statement* $-$II are true

Q5 2021 (27 Aug Shift 1)

Deuterium resembles hydrogen in properties but :

(1) reacts slower than hydrogen

(2) reacts vigorously than hydrogen

(3) reacts just as hydrogen

(4) emits β^+particles

Q6 2021 (26 Aug Shift 2)

Given below are two statements : one is labelled as $Assertion$ (A) and the other is labelled as $Reason$ (R).

$Assertion$ (A) : Heavy water is used for the study of reaction mechanism.

$Reason$ (R): The rate of reaction for the cleavage of $\mathrm{O}-\mathrm{H}$ bond is slower than that of $\mathrm{O}-\mathrm{D}$ bond.

Choose the most appropriate answer from the options given below :

(1) Both $(\mathbf{A})$ and $(\mathbf{R})$ are true but $(\mathbf{R})$ is not the true explanation of $(\mathbf{A})$.

(2) Both $(\mathbf{A})$ and $(\mathbf{R})$ are true and $(\mathbf{R})$ is the true explanation of $(\mathbf{A})$.

(3) $(\mathbf{A})$ is false but $(\mathbf{R})$ is true.

(4) $(\mathbf{A})$ is true but $(\mathbf{R})$ is false.

Q7 2021 (26 Aug Shift 1)

Which one of the following methods is most suitable for preparing deionized water?

(1) Synthetic resin method

(2) Clark's method

(3) Calgon's method

(4) Permutit method

Answer Key

Q1 (3) **Q2** (2) **Q3** (1) **Q4** (2)

Q5 (1) **Q6** (4) **Q7** (1)

Q1 (3)

$$I_2 + H_2O_2 + 2OH \longrightarrow 2I + 2H_2O + O_2$$

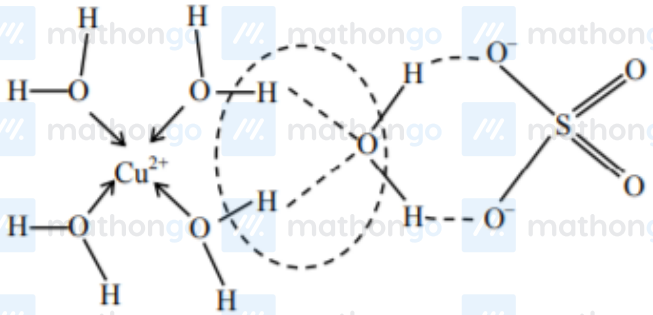
Q2 (2)

Atomic hydrogen is produced at high temperature in an electric are or under ultraviolet radiations The dissociation of dihydrogen at 2000 K is only 0.081%.

H – H bond dissociation enthalpy is highest for a single bond for any diatomic molecule.

Dihydrogen can be produced on reacting Zn with dil. HCl as well as NaOH (aq.)

Q3 (1)



One hydrogen bonded H_2O molecule

Q4 (2)

The process of producing syn-gas from coal is called gasification of coal.

Syn-gas having composition of CO & H_2 in 1 : 1

Q5 (1)

The bond dissociation energy of D_2 is greater than H_2 and therefore D_2 reacts slower than H_2.

Q6 (4)

D_2O in used for the study of reaction mechanism. Rate of reaction for the cleavage of O – H bond > O – D bond.

Q7 (1)

Pure demineralised (de-ionized) water free from all soluble mineral salts is obtained by passing water successively through a cation exchange (in the H form) and an anion exchange (in the OH^- form) resins.