

**Q1 - 24 June - Shift 1**

The highest industrial consumption of molecular hydrogen is to produce compounds of element:

- (A) Carbon (B) Nitrogen  
(C) Oxygen (D) Chlorine

*Space for your notes:*

**Q2 - 24 June - Shift 2**

In the industrial production of which of the following, molecular hydrogen is obtained as a byproduct?

- (A) NaOH (B) NaCl  
(C) Na metal (D) Na<sub>2</sub>CO<sub>3</sub>

*Space for your notes:*

**Q3 - 26 June - Shift 2**

Boiling of hard water is helpful in removing the temporary hardness by converting calcium hydrogen carbonate and magnesium hydrogen carbonate to

- (1) CaCO<sub>3</sub> and Mg(OH)<sub>2</sub>  
(2) CaCO<sub>3</sub> and MgCO<sub>3</sub>  
(3) Ca(OH)<sub>2</sub> and MgCO<sub>3</sub>  
(4) Ca(OH)<sub>2</sub> and Mg(OH)<sub>2</sub>

*Space for your notes:*

**Q4 - 28 June - Shift 2**

## Questions

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Hydrogen has three isotopes : protium ( $^1\text{H}$ ), deuterium ( $^2\text{H}$  or D) and tritium ( $^3\text{H}$  or T). They have nearly same chemical properties but different

physical properties. They differ in

(A) number of protons

(B) atomic number

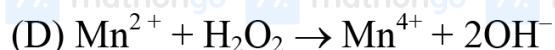
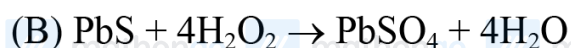
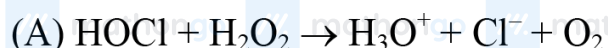
(C) electronic configuration

(D) atomic mass

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**Q5 - 29 June - Shift 1**

Which one of the following reactions indicates the reducing ability of hydrogen peroxide in basic medium ?



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### Answer Key

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**Q1 (B)**

**Q2 (A)**

**Q3 (A)**

**Q4 (D)**

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**Q5 (C)**

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## Hints and Solutions

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**Q1 (B)**

Nitrogen . Around 55% of hydrogen around world goes to ammonia production

**Q2 (A)**

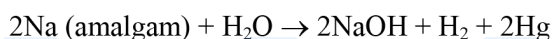
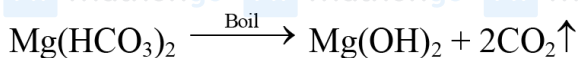
Sodium hydroxide is generally prepared commercially by electrolysis of sodium chloride in castner Kellner cell.

at cathode :  $\text{Na} + \text{e}^- \xrightarrow{\text{Hg}} \text{Na} - \text{amalgum}$

Anode :  $\text{Cl}^- \longrightarrow \frac{1}{2} \text{Cl}_2 + \text{e}^-$

The Na-amalgum is treated with water to give

sodium hydroxide and hydrogen gas :

**Q3 (A)****Q4 (D)**

They have different neutrons and mass number

**Q5 (C)**

In option (A) and (C) reducing action of hydrogen peroxide is shown.

In option (A) it is in acidic medium, in option (B) it is in basic medium.

**or**

For reducing ability  $\text{H}_2\text{O}_2$  changes to  $\text{O}_2$  , i.e.

oxidize , so in option 'A' & 'C'  $\text{O}_2$  is formed but 'A'

is in acidic medium so option - C correct.

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