

**HYDROGEN &  
IT'S COMPOUND**

1. Dihydrogen of high purity ( $> 99.95\%$ ) is obtained through:
- (1) the electrolysis of warm  $\text{Ba}(\text{OH})_2$  solution using Ni electrodes.
  - (2) the reaction of Zn with dilute HCl
  - (3) the electrolysis of brine solution.
  - (4) the electrolysis of acidified water using Pt electrodes.
2. The one that is NOT suitable for the removal of permanent hardness of water is :
- (1) Treatment with sodium carbonate
  - (2) Calgon's method
  - (3) Clark's method
  - (4) Ion-exchange method

**SOLUTION****1. Official Ans. by NTA (1)**

**Sol.** High purity (>99.95%) dihydrogen is obtained by electrolysing warm aqueous barium hydroxide solution between nickel electrodes.

**2. Official Ans. by NTA (3)**

**Sol.** Temporary hardness of water is removed by clark method and boiling. While permanent hardness of water is removed by treatment with sodium carbonate ( $\text{Na}_2\text{CO}_3$ ), calgons method and ion-exchange method