

# Chapter 7: Hydrogen

## Worksheet 1

### 1. Write T for true and F for false statement.

- (i) The name hydrogen was given by Antoine Lavoisier.
- (ii) Hydrogen is the lightest element.
- (iii) The molecular formula of phosphoric acid is  $\text{H}_2\text{PO}_4$ .
- (iv) Zinc reacts with cold water to produce hydrogen gas.
- (v) Hydrogen is a highly inflammable gas.

### 2. Complete and balance the following equations.

- (i)  $\text{Na} + \text{H}_2\text{O} \longrightarrow$
- (ii)  $\text{Zn} + \text{HCl} \longrightarrow$
- (iii)  $\text{Al} + \text{NaOH} + \text{H}_2\text{O} \longrightarrow$
- (iv)  $\text{C} + \text{H}_2 \longrightarrow$
- (v)  $\text{Na} + \text{H}_2 \longrightarrow$

### 3. Fill in the blanks.

- (i) A molecule of hydrogen is represented as \_\_\_\_\_ .
- (ii) Calcium reacts with water to produce \_\_\_\_\_ and \_\_\_\_\_ .
- (iii) Hydrogen reacts with sulphur to form \_\_\_\_\_ gas.
- (iv) Zinc is \_\_\_\_\_ reactive than iron.
- (v) Hydrogen reacts with some metals to form \_\_\_\_\_ .

### 4. Answer the following questions.

- (i) How does hydrogen gas occur in nature?
- (ii) List two physical properties of hydrogen gas.
- (iii) What happens when electric current is passed through acidified water?
- (iv) How does hydrogen gas react with metallic oxides?
- (v) List some uses of hydrogen gas.

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### Worksheet 2

#### 1. Write T for true and F for false statement.

- (i) Hydrogen gas has no effect on litmus paper.
- (ii) Hydrogen gas burns in air with a 'pop' sound.
- (iii) In laboratory, hydrogen gas is prepared by the action of nitric acid on zinc granules.
- (iv) Hydrogen gas is sparingly soluble in water.
- (v) Lithium reacts with hydrogen to form lithium hydride.

#### 2. Convert following statements into chemical equations and balance them.

- (i) Zinc reacts with steam.
- (ii) Hydrogen gas reacts with calcium metal.
- (iii) Hydrogen gas is added to vegetable oil.
- (iv) Hydrogen combines with chlorine.
- (v) Zinc reacts with sodium hydroxide.

#### 3. Define the following.

- (i) Electrolysis
- (ii) Reducing agent
- (iii) Hydrogenation
- (iv) Oxidation
- (v) Redox reaction

#### 4. Answer the following questions.

- (i) What happens when methane is mixed with steam?
- (ii) Describe Haber-Bosch process with an equation.
- (iii) What is meant by catalyst?
- (iv) Write one example of redox reaction.
- (v) Why is hydrogen called a clean fuel?