

HYDROGEN WORKSHEET-1

1. Multiple choice questions: (Tick the correct option).

- Hydrogen reacts with copper oxide to form
 - copper hydride and water
 - copper and water
 - copper hydroxide and water
 - copper hydroxide only
- The substance which does not contain hydrogen in the combined state is
 - carbohydrates
 - proteins
 - fats
 - mineral salts
- Which of the following pairs of elements will react to give a gas which dissolves in water to form an acid?
 - Hydrogen and oxygen
 - Hydrogen and chlorine
 - Hydrogen and nitrogen
 - None of the above
- With which of the following elements will hydrogen react to give a gas that smells like rotten eggs?
 - Oxygen
 - Chlorine
 - Nitrogen
 - Sulphur
- Which among the following metals reacts with water most vigorously?
 - Sodium
 - Magnesium
 - Zinc
 - Iron

2. Match the statements in Column A with those in Column B.

- | Column A | Column B |
|--------------------------------------------------------------|------------------------|
| (i) A metal used in converting vegetable oils to ghee. | (1) Lead |
| (ii) A flame used for cutting and welding purposes. | (2) Helium |
| (iii) A gas used in filling weather observation balloons. | (3) Sodium hydroxide |
| (iv) An alkali which reacts with aluminium to form hydrogen. | (4) Oxy-hydrogen flame |
| (v) A metal which does not react with dil. sulphuric acid. | (5) Nickel |

3. Fill in the blanks with appropriate words.

- Water reacts with metals to give off gas.
- Hydrogen was discovered by
- gas is highly inflammable.

4. Hydrogen acts as a agent.
5. Slow rusting involves the process of
4. Name the following.
 1. A metal which reacts reversibly with steam, giving hydrogen.
 2. The salt formed when zinc reacts with concentrated sodium hydroxide solution.
 3. The substance which alters the rate of the reaction in the conversion of nitrogen to ammonia.
 4. A non-metal which reacts with hydrogen to give a foul smelling gas.
 5. The catalyst used in the hydrogenation of oil.
5. Write balanced chemical equations for the following reactions.
 1. Iron to iron [II] chloride using an acid.
 2. Zinc to sodium zincate using an alkali
 3. Lead [II] oxide to lead using hydrogen.
 4. Two neutral gases one of which is hydrogen to a basic gas.
 5. Hydrogen is passed over heated cupric oxide to produce metallic copper and water.
6. Complete (and balance) the following equations.
 1. $H_2 + S \rightarrow \dots\dots\dots$
 2. $Zn + \dots\dots\dots \rightarrow ZnCl_2 + H_2$
 3. $Al + NaOH + \dots \rightarrow \dots\dots\dots + \dots\dots\dots$
 4. $K + H_2O \rightarrow \dots\dots\dots + \dots\dots\dots$
 5. $Fe_3O_4 + H_2 \rightarrow \dots\dots\dots + \dots\dots\dots$
7. Even though hydrogen is lighter than air, it is not collected by the downward displacement of air.
8. Soap bubbles containing hydrogen rise upward but the same containing oxygen do not.
9. Metallic zinc is obtained as a residue when hydrogen gas is passed over heated zinc oxide.
10. Hydrogen is used in airships.