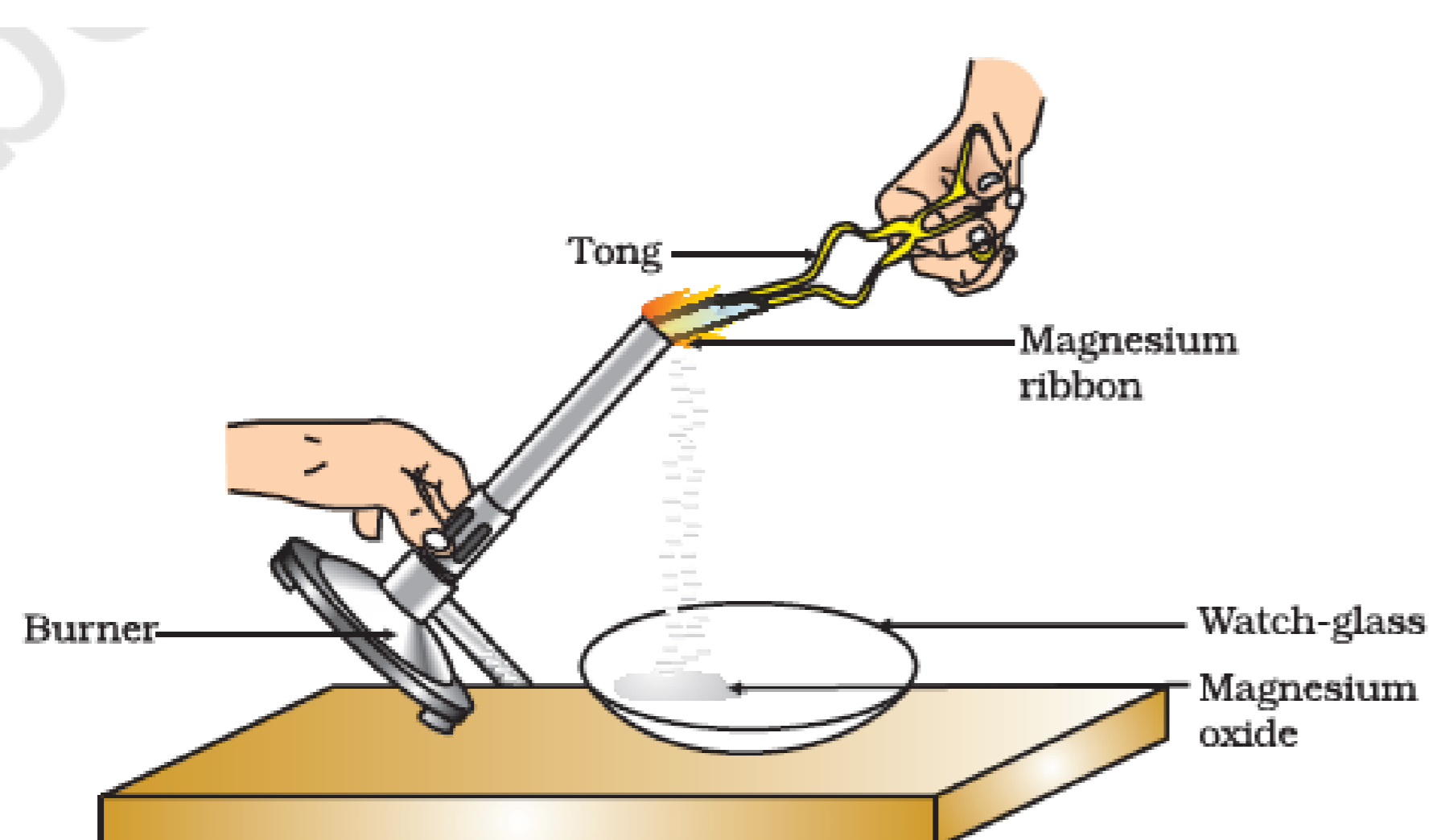


Case study based questions
10th Science

Chemical Reactions and Equations

Passage - 1

5 Marks



In the above image, The cleaned magnesium ribbon about 3-4 cm long is burnt using a burner by holding it with a pair of tongs. And the ash so formed is collected in a watch-glass. The magnesium ribbon is kept away as far as possible from eyes.

Q1. (1) White

Q2. (2) Chemical

Q3. (3) Magnesium Oxide

Q4. (4) All of the above

Q5. (2) FALSE

Passage - 2

5 Marks

Reactants \longrightarrow Products

A word-equation shows change of reactants to products through an arrow placed between them. The reactants are written on the left-hand side (LHS) with a plus sign (+) between them. Similarly, products are written on the right-hand side (RHS) with a plus sign (+) between them. The arrowhead points towards the products, and shows the direction of the reaction.

Q1. (1) *Hydrogen + Oxygen \rightarrow Water*

Q2. (3) Both (1) and (2)

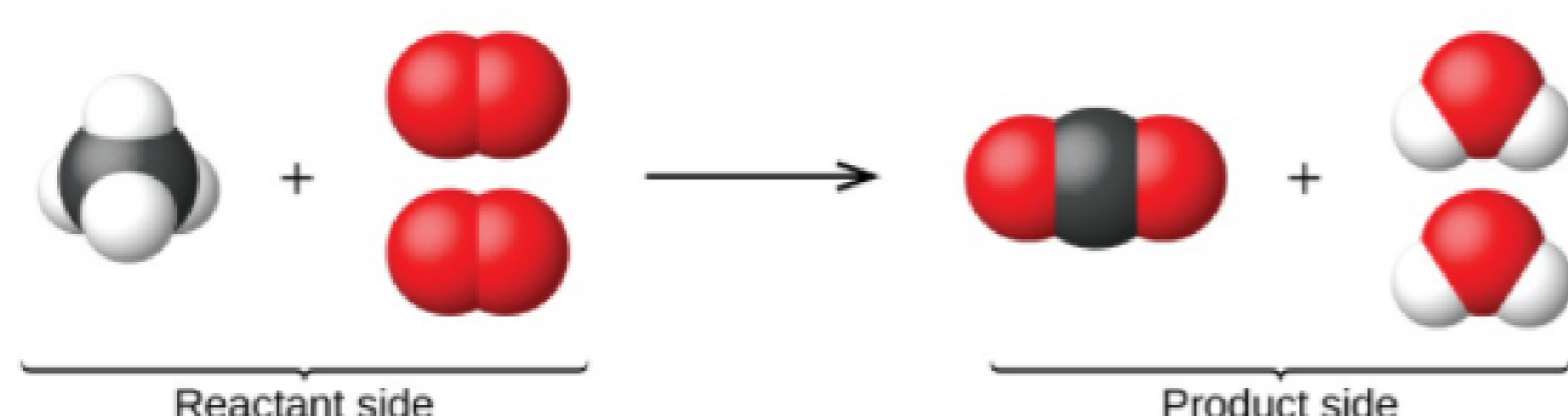
Q3. (2) FALSE

Q4. (4) Magnesium Oxide

Q5. (2) Arrowhead

Passage - 3

5 Marks



According to the "Law of Conservation of Mass", mass can neither be created nor destroyed in a chemical reaction. That is, the total mass of the elements present in the products of a chemical reaction has to be equal to the total mass of the elements present in the reactants. In other words, the number of atoms of each element remains the same, before and after a chemical reaction. Hence, we need to balance a skeletal chemical equation.

Q1. (2) No

Q2. (4) All of the above

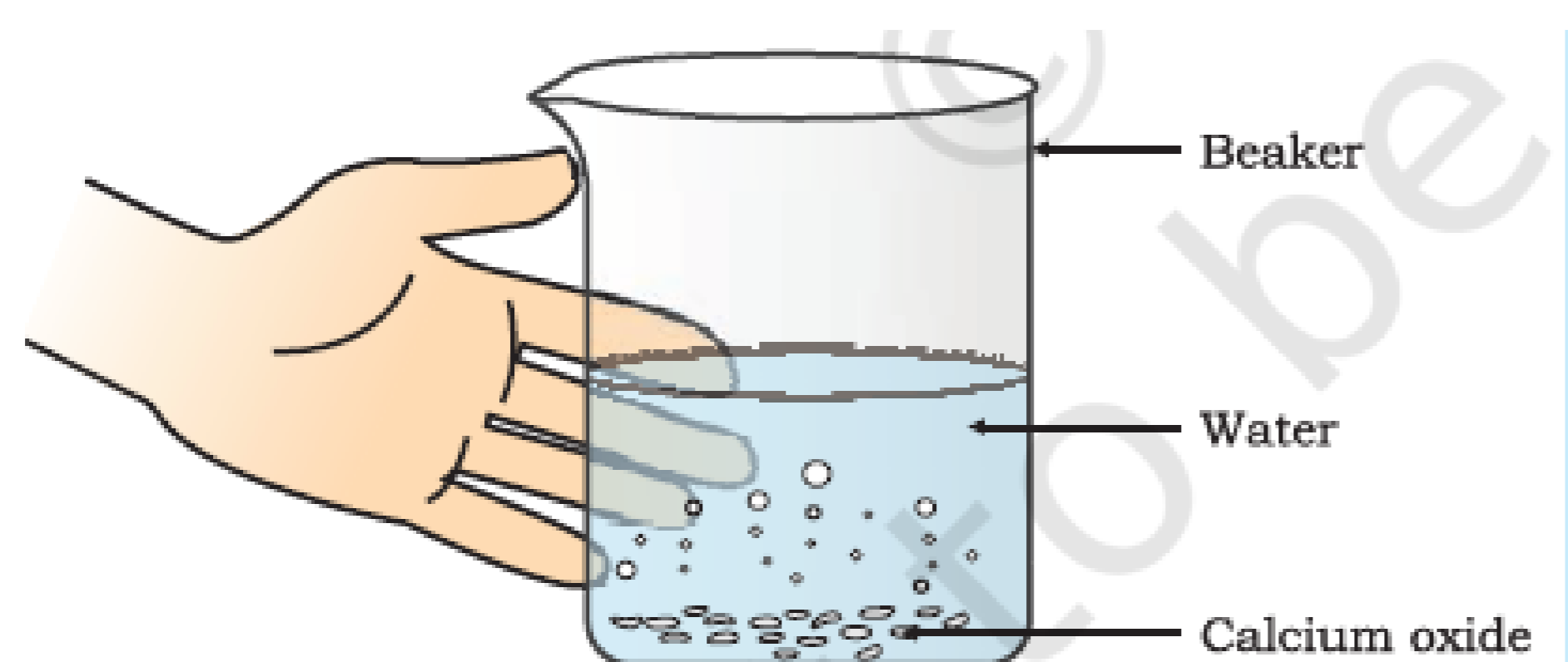
Q3. (1) $2Mg + O_2 \rightarrow 2MgO$

Q4. (4) All of the above

Q5. (2) FALSE

Passage - 4

5 Marks



In the above image, a small amount of quick lime is taken in a beaker and water is added to it slowly. When we touch the beaker we feel that the temperature of the beaker changes.

Q1. (1) Increases

Q2. (2) Calcium oxide

Q3. (4) Combination reaction

Q4. (1) $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq)$

Q5. (1) TRUE

Passage - 5

5 Marks



A solution of slaked lime is used for whitewashing walls. Calcium hydroxide reacts slowly with the carbon dioxide in air to form a thin layer of calcium carbonate on the walls. Calcium carbonate is formed after two to three days of whitewashing and gives a shiny finish to the walls

Q1. (2) $Ca(OH)_2$

Q2. (4) All of the above

Q3. (4) $CaCO_3$

Q4. (4) $CaCO_3$

Q5. (1) Carbon dioxide

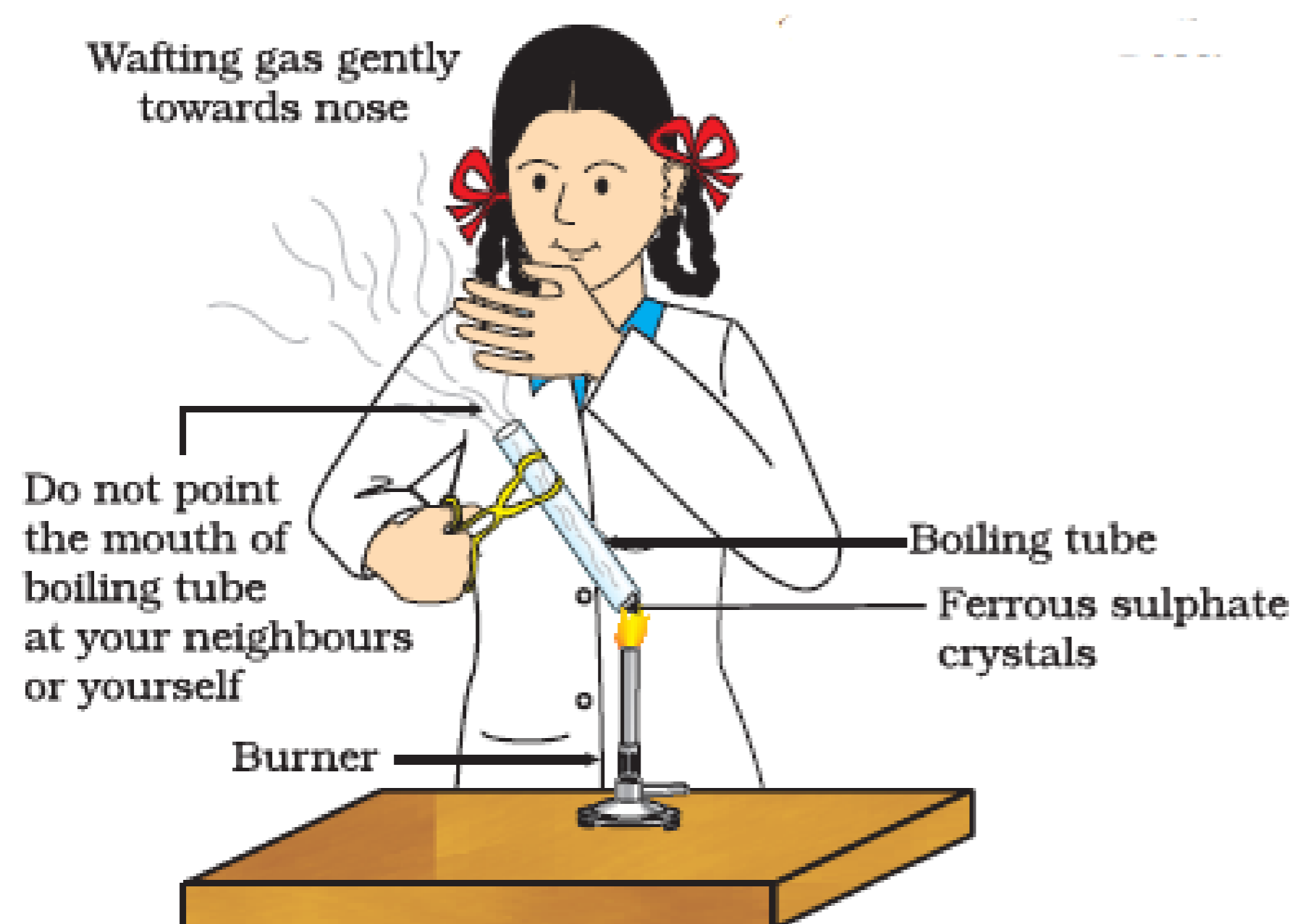
Q3. (2) Sublimation of dry ice

Q4. (3) Both (1) and (2)

Q5. (3) Both (1) and (2)

Passage - 2

5 Marks



In the above image, an experiment is being performed where 2 g ferrous sulphate crystals are taken in a dry boiling tube. The colour of the ferrous sulphate crystals is noted down. After that the boiling tube is heated over the flame of a burner and the colour of the crystal is noted down. Based on the above experiment answer the questions given below.

Q1. (1) Green

Q2. (2) White

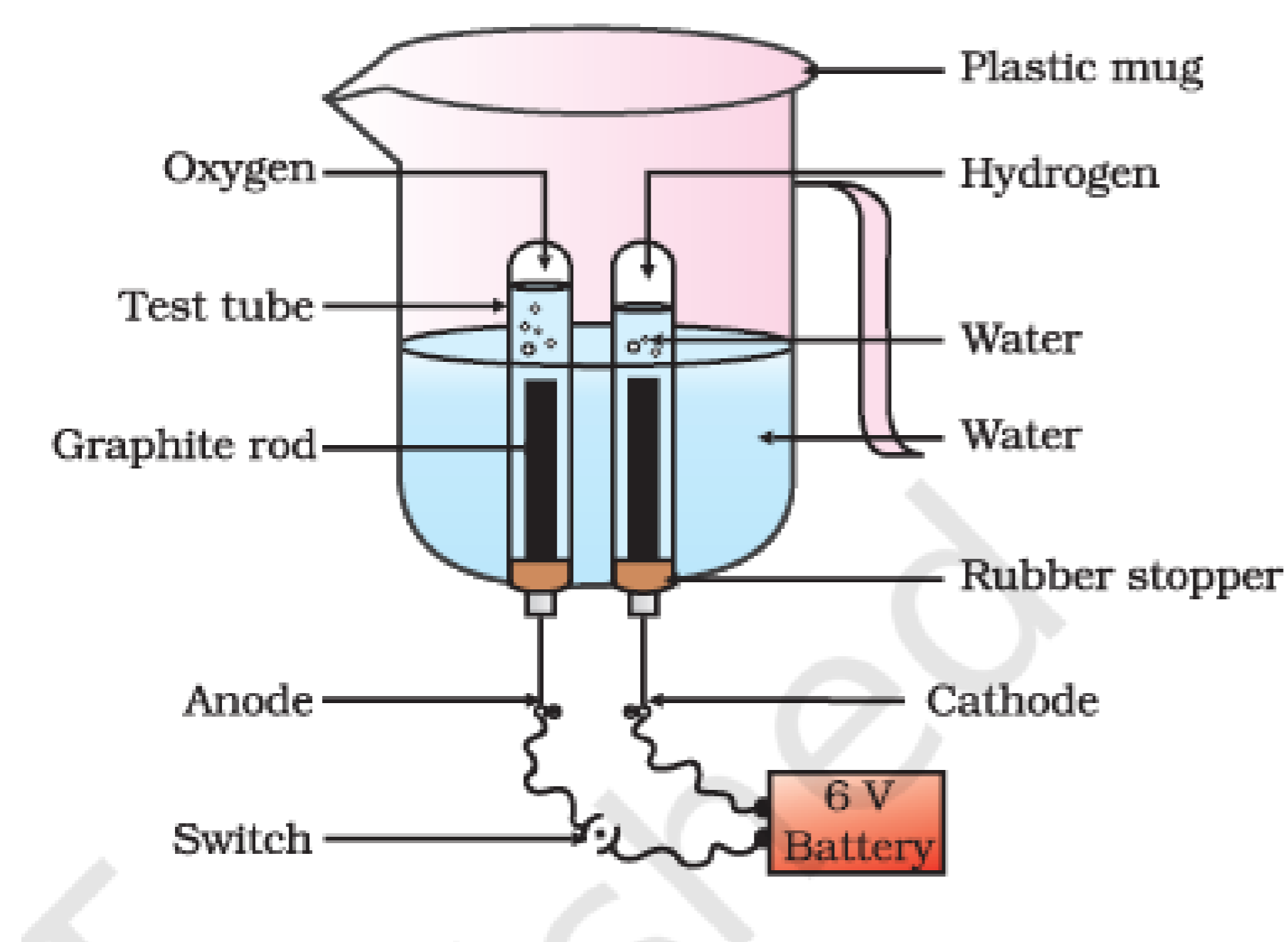
Q3. (1) Decomposition reaction

Q4. (3) Displacement

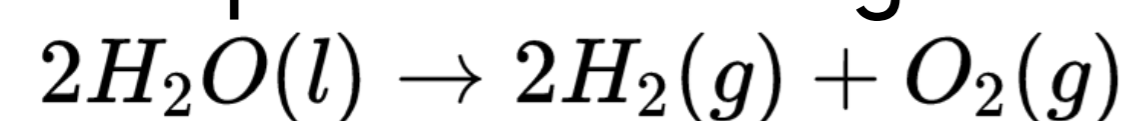
Q5. (4) All of the above

Passage - 3

5 Marks



In the above image, the electrolysis of water is performed. In electrolysis the electric current is used to decompose the compound into its constituting compounds. During the electrolysis of water, the reaction involved is:



Q1. (4) double of the volume of gas collected at the anode

Q2. (3) positive, negative

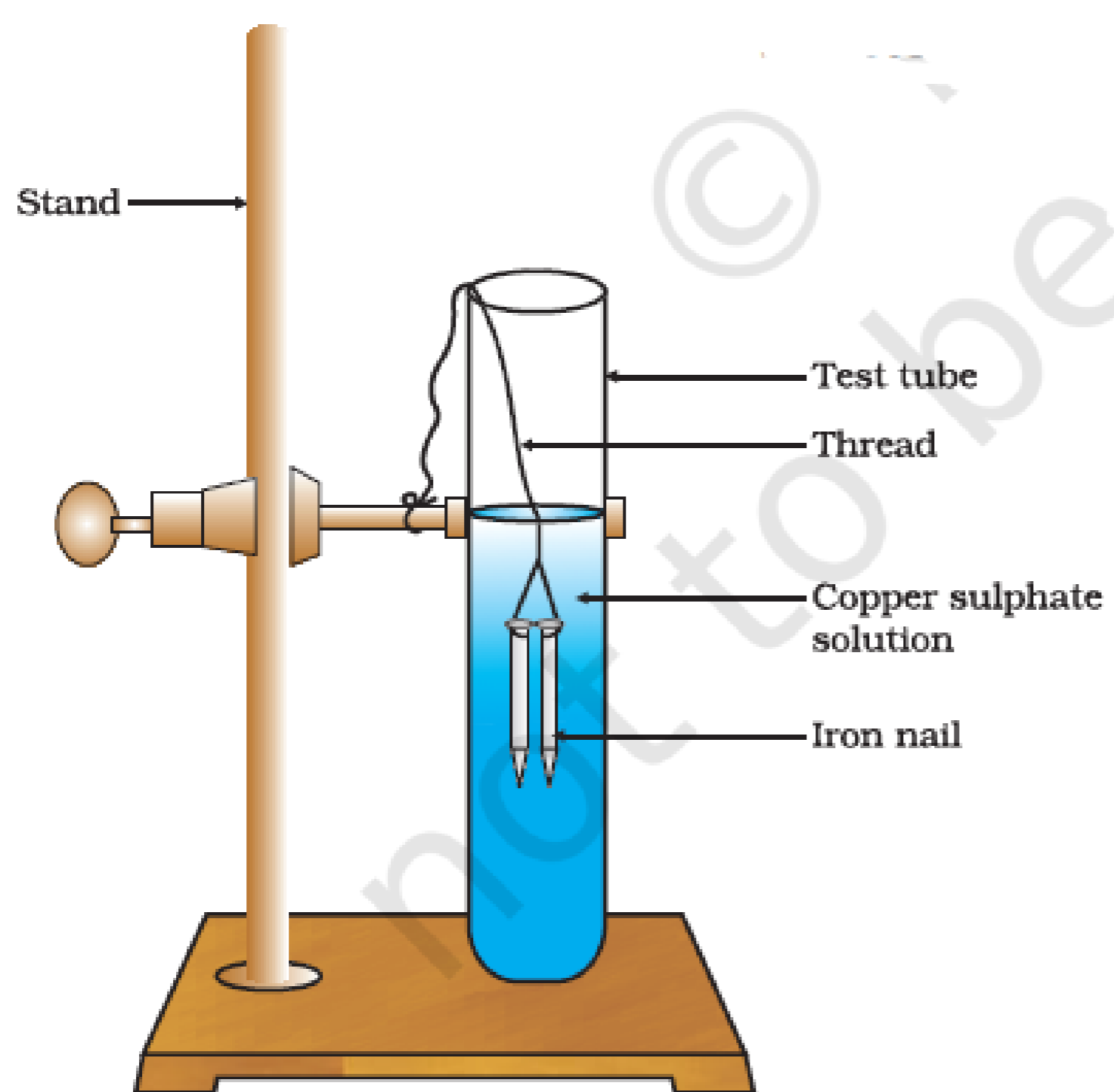
Q3. (1) Cathode

Q4. (4) All of the above

Q5. (3) 3

Passage - 4

5 Marks



In the above image, two iron nails are taken and they are tied with a thread and immersed in a copper sulphate solution for about 20 minutes. After 20 minutes, iron nails are taken out from the copper sulphate solution. We observe that iron nail become brownish in colour and the blue colour of copper sulphate solution fades.

Q1. (3) Displacement reaction

Q2. (1) TRUE

Q3. (4) All of the above

Q4. (2) FALSE

Q5. (3) Both (1) and (2)

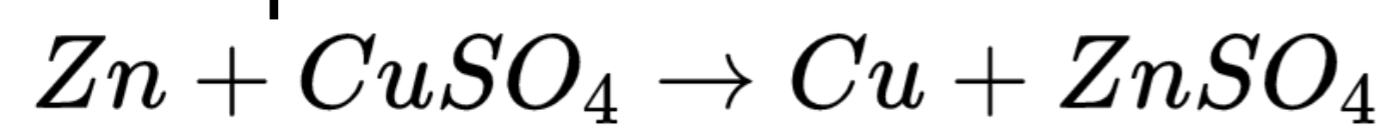
Passage - 5

5 Marks



In a redox reaction, both oxidation, as well as reduction, takes place together, oxidation involves loss of electrons while reduction involves the gain of electrons. The redox- reaction may involve a combination of atoms and molecules, displacement of metals, or non-metals.

Example:



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Q1. (1) $CuSO_4$

Q2. (1) loses the electrons

Q3. (4) Copper Sulphate

Q4. (2) Displacement reaction

Q5. (2) $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$
