Changes Around Us: Physical and Chemical Changes — Solutions

Olympiad Preparation Worksheet | Class 7 Science

Name: _____ Roll No.: _____ Class: 7

Date: _____ Marks: ____ / 13

INSTRUCTIONS

1. Read each question carefully and answer all questions.
2. For Assertion–Reason questions, choose the correct standard option.
3. Give clear reasons where asked; use the answer space provided.

LEARNING OBJECTIVES

- Distinguish between physical and chemical changes.
- Apply the properties of physical and chemical changes to everyday situations.
- Use evidence to reason about changes in materials.

Section A — Multiple Choice

Choose the best answer for each question.

1 A student cuts a sheet of aluminium foil into small pieces. Which statement best describes the change? [1]

(a) A new substance is formed.

(b) **Only the size and shape change.** ✓

(c) The aluminium changes into a gas.

(d) The pieces cannot be joined or melted again.

> **Explanation:** Cutting changes the foil's size and shape, but it remains aluminium.

2 Which observation gives the strongest evidence that a chemical change has occurred when vinegar is mixed with baking soda? [1]

(a) The mixture takes the shape of its container.

(b) The solid particles become smaller.

(c) **Bubbles of gas are produced.** ✓

(d) The mixture can be stirred.

> **Explanation:** The bubbles show that a gas is formed, which is evidence of a chemical change.

3 A student melts candle wax and lets it cool until it solidifies. Which conclusion is most accurate? [1]

(a) It is a chemical change because heat is involved.

(b) **It is a physical change because the wax changes state but remains wax.** ✓

(c) It is a chemical change because solid wax can never be obtained again.

(d) It is both a physical and chemical change because the wax changes shape.

> **Explanation:** Melting and solidifying change the state of the wax; no new substance is formed.

4 An iron gate is left outdoors in damp air. It slowly develops a reddish-brown coating. Which statement best explains this change? [1]

(a) The iron has only changed its shape.

(b) **A new substance, rust, has formed.** ✓

(c) The iron has melted and then solidified.

(d) The reddish-brown coating is iron dust.

> **Explanation:** Rusting forms a new substance when iron reacts with oxygen and moisture.

5 A student crushes ice and then melts it. Which statement is correct about the material before and after these changes? [1]

(a) It changes from water into a new substance.

(b) **It remains water, though its size, shape or state changes.** ✓

(c) It becomes a mixture of ice and oxygen.

(d) It cannot be changed back into ice.

> **Explanation:** Ice and liquid water are the same substance; crushing and melting are physical changes.

Section B — True or False

Write True or False for each statement.

6 When sugar dissolves in water, the sugar disappears and a new substance is formed. ☐ True ☒ False [1]

> **Explanation:** Dissolving sugar is a physical change; sugar can be recovered by evaporating the water.

7 Cooking an egg is a chemical change because the cooked egg has properties different from the raw egg and cannot easily be changed back. ☒ True ☐ False [1]

> **Explanation:** Cooking produces lasting changes in the egg's properties, so it is a chemical change.