INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VII	**DEPARTMENT: SCIENCE** **2026- 2027**	**DATE: 31/10/2026**
WORKSHEET NO: 7 **WITH ANSWERS**	**TOPIC: CHANGES AROUND US-PHYSICAL AND CHEMICAL**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE TYPE QUESTIONS (1M):

1. Which of the following sets of observations suggests that a chemical change has taken place?
   (a) Change in shape and size
   (b) Melting and freezing
   (c) Formation of gas and change in colour
   (d) Breaking and cutting into pieces

2. Which of the following is/are true when an iron nail is left exposed to moist air?
   (i) A new substance is formed.
   (ii) The colour of the nail changes.
   (iii) The change can be easily reversed.
   (iv) The change is a chemical change.
   (a) (i) and (ii) are correct
   (b) (ii) and (iii) are correct
   (c) (i), (ii) and (iv) are correct
   (d) (i), (iii) and (iv) are correct

3. Which of these pairs correctly matches the type of change?
   (a) Rusting – Physical change
   (b) Melting – Chemical change
   (c) Burning – Chemical change
   (d) Boiling water – Chemical change

4. What is the minimum temperature at which a substance catches fire called?

(a) Boiling point (b) Ignition temperature

(c) Melting point (d) Freezing point

5. Riya noticed that wet clothes became dry when kept under the Sun. What type of change is involved in this process?

(a) Chemical and irreversible change

(b) Physical and reversible change

(c) Chemical and reversible change

(d) Physical and irreversible change

6. A student mixes vinegar with baking soda in a closed bottle. After a few seconds, the bottle's cap pops open. What can be concluded from this observation?

(a) Heat from the room expanded the air inside the bottle.

(b) The reaction produced a gas that increased the pressure inside the bottle.

(c) The vinegar evaporated and pushed the cap open.

(d) The baking soda melted and released air.

7. When food is cooked, the taste and smell change. What type of change has occurred?

(a) Physical change

(b) Chemical change

(c) Temporary change

(d) Reversible change

For the questions that follow, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below:

(A) Both A and R are true, and R is the correct explanation of the assertion.
(B) Both A and R are true, but R is not the correct explanation of the assertion.
(C) A is true, but R is false.
(D) A is false, but R is true.

8. **Assertion (A):** Freezing is the process in which water turns to ice at 0°C.

Reason(R): Freezing of water is a physical change because only the physical state of water is changed.

9. **Assertion (A):** Formation of rust is a chemical change.

Reason(R): For the formation of rust, iron must be exposed to air and water.

10. **Assertion**(A): Burning of paper is a chemical change.

Reason (R): Burning produces new substances such as ash and gases.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. Define change.

   [Hint: A change refers to a noticeable difference in shape, size, colour, state, internal structure or any other property.]

2. Give two examples for each of the following cases:

   a) Reversible physical changes.

   [Hint: Blowing a balloon, folding paper]

   b) Physical changes which are not reversible.

   [Hint: Chopping of vegetables, breaking of a glass tumbler]

3. Is cloud formation a chemical or physical change? Explain.

   [Hint: Physical change. Clouds are formed by the condensation of water vapour present in the atmosphere. When rainwater goes back to the earth, no new substance is formed.]

4. Justify the following statement: Photosynthesis is a chemical change.

   [Hint: During Photosynthesis, plants use carbon dioxide and water in the presence of sunlight and chlorophyll to form new substances- glucose and oxygen.]

5. The formation of manure from leaves is a chemical change. Why?

   [Hint: Formation of manure from leaves is a chemical change because the manure formed has a different composition from leaves.]

6. How can we distinguish between physical and chemical changes? [WB]

   [Hint: Physical changes- No new substance is formed. Usually temporary and mostly reversible in nature. Heat or light is generally not involved.

   Chemical changes- One or more new substances are formed. Usually permanent and irreversible in nature. Heat or light is absorbed or released.]

III. SHORT ANSWER TYPE QUESTIONS (3M):

1. Explain the process of rusting. Why is it important to prevent rusting of iron? [WB]

   [Hint: When an iron object is left in damp air (or water) for a considerable time, it gets covered with a red-brown flaky substance called rust. This is called rusting of iron.

During the rusting of iron, iron metal combines with the oxygen (of air) in the presence of water (moisture) to form a compound iron oxide.

It is important to prevent rusting because rust weakens and damages iron, reducing their strength, durability and useful life.]

2. What happens if the oxygen supply is limited during combustion? [WB]

[Hint: Incomplete combustion may occur, producing smoke and harmful gases.]

3. The same iron wires are kept in the following different places –

a) On the moon. b) Near the beach in Mumbai. c) In Delhi.

Compare the degree of rust formation in the three places.

[Hint: a) The moon has no air. In the absence of air, no rust will form.

b) Mumbai is a coastal region which has more water vapour in the air, and rusting will occur faster.

c) Delhi is far away from the sea coast. The amount of water vapour in the air is less. Thus, the rusting process will be slow.]

4.a) Explain why burning wood and cutting it into small pieces are considered two different types of changes.

[Hint: Cutting of wood is a physical change as it does not change the nature of the wood. On the other hand, burning of wood is a chemical change as wood is converted to charcoal with the liberation of Carbon dioxide.]

b) Explain the physical and chemical changes involved in weathering that lead to the formation of soil.[WB]

[Hint: Physical changes: Rocks break into smaller pieces due to heat, cooling, water, wind and ice, without forming new substances.

Chemical changes: Minerals in rocks react with water, oxygen and carbon dioxide, forming new substances.]

5. Define combustion. State the three requirements for the combustion process to occur.

[Hint: A chemical reaction in which a substance reacts with oxygen and produces heat and/or light is called combustion. Substances that undergo combustion reactions are called combustible substances. For example, wood, paper, cotton, and kerosene.

The three requirements for the combustion process to occur are-

i) A combustible substance, also called 'fuel'

ii) Oxygen

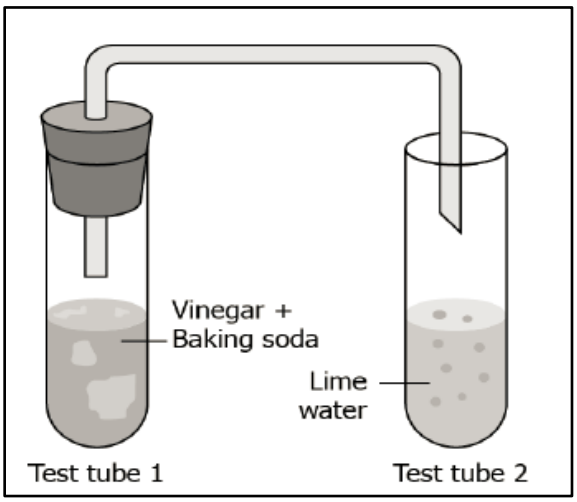
iii) Heat that allows the fuel to reach its ignition temperature.]

IV. LONG ANSWER TYPE QUESTIONS (5M):

1. Classify the following changes as physical or chemical changes and give a reason for it-

SL. NO.	ACTIVITY	KIND OF CHANGE	REASON
I	Rotting of eggs	**Chemical change**	**A change in composition takes place and is an irreversible process. The smell of rotten eggs is different from fresh eggs.**
II	Burning of coal	**Chemical change**	**When coal is burnt, a new substance, carbon dioxide, is formed.**
III	Evaporation of seawater	**Physical change**	**When water evaporates, it changes from the liquid state to the gaseous state, but it is still the water; it has not changed into any other substance.**

2. Observe the given activity and answer the questions –



a) Name the acid present in vinegar used in this activity.

[Hint: Acetic acid]

b) Which gas is produced when baking soda reacts with vinegar?

[Hint: Carbon dioxide]

c) What change will you observe in lime water and why?

[Hint: Lime water turns milky on passing carbon dioxide gas through it due to the formation of calcium carbonate.]

d) Write word equations for both chemical changes.

[Hint: Carbon dioxide gas is given off in the reaction between vinegar (acetic acid) and baking soda (sodium hydrogen carbonate).

Acetic acid + Sodium hydrogen carbonate ⟶ Carbon dioxide + Other substances

When carbon dioxide gas is passed through lime water (Calcium hydroxide), it turns milky due to the formation of calcium carbonate.

Calcium hydroxide + carbon dioxide ⟶ Calcium carbonate + Water]

V. CASE STUDY- BASED QUESTIONS/ PASSAGE-BASED QUESTIONS:

1. A physical change is a change in which the physical properties of a substance, such as its shape, size, appearance, or state, may change, but no new substance is formed. The substance remains the same even after the change. Most physical changes can be reversed by suitable methods. Physical changes are commonly observed in our daily lives. For example, when ice is heated, it melts and changes into water. On further heating, water changes into water vapour. When water vapour is cooled, it changes back into water. Similarly, cutting, tearing, folding, or crushing an object changes its shape or size without producing a new substance. Dissolving sugar in water is also a physical change because the sugar can be recovered by evaporating the water. Thus, physical changes mainly affect the physical properties of substances and do not result in the formation of new substances.

   i) What happens to a substance during a physical change?
   [Its shape, size, appearance, or state may change, but no new substance is formed.]

   ii)Give two examples of physical changes from the passage.
   [Melting of ice and dissolving sugar in water are examples of physical changes.]

   iii) Why is dissolving sugar in water considered a physical change?

[It is a physical change because no new substance is formed, and the sugar can be recovered by evaporating the water.]

ANSWERS FOR OBJECTIVE QUESTIONS 1 TO 10

1. **(c) Formation of gas and change in colour**
2. **(c) (i), (ii) and (iv) are correct**
3. **(c) Burning – Chemical change**
4. **(b) Ignition temperature**
5. **(b) Physical and reversible change**
6. **(b) The reaction produced a gas that increased the pressure inside the bottle.**
7. **(b) Chemical change**
8. **(B) Both A and R are true, but R is not the correct explanation of the assertion.**
9. **(B) Both A and R are true, but R is not the correct explanation of the assertion**
10. **(A) Both A and R are true, and R is the correct explanation of the assertion.**

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