Ch – 6 Changes Around Us
Class – 6
Science

II. Very Short Answer Type Questions

A. Give two examples for the following:

1. Physical changes – a) Melting of ice b) Tearing of paper
2. Chemical changes – a) Burning of wood b) Rusting of iron
3. Reversible changes – a) Freezing of water b) Stretching of rubber band
4. Irreversible changes – a) Burning of paper b) Cooking of food
5. Application of expansion – a) Fixing metal rims on wooden wheels
   b) Railway tracks laid with gaps

B. Identify the type of changes that occur when the following happens:

1. Breaking of a glass jar – Physical and irreversible change
2. Making cottage cheese from milk – Chemical and irreversible change
3. Powdering of sugar – Physical and reversible change
4. Melting of ice – Physical and reversible change
5. Burning of Coal – Chemical Changes and irreversible Changes

III. Short Answer Type Questions

Q.1 Compare reversible and irreversible changes by citing two examples of each.

Ans: a) Reversible changes can be reversed to get the original substance. Example: Melting of ice, Dissolving salt in water.

b) Irreversible changes cannot be reversed. Example: Burning of paper, Rusting of iron.

Q.2 Describe how baking a cake is an example of an irreversible reaction.

Ans: When a cake is baked, heat causes chemical reactions between the ingredients. A new substance (cake) is formed which cannot be changed back into the original ingredients. Hence, it is an irreversible change.

Q.3 Compare physical and chemical changes by giving two examples of each.

Ans: Physical changes are changes in which no new substance is formed, and the change can often be reversed.

Examples: a) Melting of ice b) Tearing of paper

Chemical changes are changes in which new substances are formed, and the change cannot be reversed.

Examples: a) Burning of wood b) Rusting of iron

Q.4 Describe how breaking of glass is an irreversible and physical change.

Ans: When glass breaks, its shape and size change, but no new substance is formed — this makes it a physical change. However, the broken glass cannot be joined back into its original form, which means the change cannot be reversed, so it is irreversible. Hence, breaking of glass is a physical but irreversible change.

Q.5 What will happen if an inflated balloon is kept in the sun for some time?

Ans: When an inflated balloon is kept in the sun, the air inside it gets heated and expands. As a result, the size of the balloon increases. If the heat is too much, the balloon may even burst due to the increased air pressure inside.

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IV. Long Answer Type Questions

Q.1 Describe how the three physical states of water can be changed from one state to another.

Ans: Water can exist as solid (ice), liquid (water), and gas (steam).

a) On heating, ice melts to form water (melting).

b) On further heating, water becomes steam (evaporation).

c) On cooling, steam condenses to water (condensation), and water freezes to ice (freezing).

Q.2 Which type of change—reversible or irreversible—takes place in each of the following cases? Give reasons.

Ans: a. Ripening of fruits – Irreversible change (cannot become unripe again)

b. Melting of ice cream – Reversible change (can be frozen again)

c. Tearing of paper – Irreversible change (cannot be joined exactly as before)

d. Curdling of milk – Irreversible change (curd cannot be turned back into milk)

Q.3 Which type of change, physical or chemical, takes place in each of the following cases? Give reasons for each

i) Baking a cake ii) Burning of paper iii) Tearing of paper iv) Breaking of glass

Case	Type of Change	Reasons
i) Baking a cake	Chemical Change	New substances with different properties are formed due to chemical reactions involving ingredients like flour, eggs, and leavening agents (e.g., baking soda or powder). The change is generally irreversible.
ii) Burning of paper	Chemical Change	The paper reacts with oxygen (combustion) to form completely new substances like ash, carbon dioxide, and water vapour (and releasing heat and light). This change is irreversible.
iii) Tearing of paper	Physical Change	Only the size and shape of the paper are altered. The chemical composition of the paper remains the same; it's still cellulose. No new substance is formed.
iv) Breaking of glass	Physical Change	The glass is simply broken into smaller pieces. Its chemical composition (silica and other components) remains unchanged. It's the same material, just in a different shape/size. No new substance is formed.

Q.4 Describe one example each of expansion in solids, liquid and gases

State of Matter	Example of Expansion	Description
Solid	Expansion Joints in Bridges and Railroad Tracks	Metal expands when heated. Gaps are deliberately left between sections of steel tracks or bridge spans. On a hot day, the metal expands and the gaps close up. This prevents the structure from buckling or cracking.
Liquid	Liquid-in-Glass Thermometer	The liquid (like mercury or colored alcohol) inside the thermometer bulb absorbs heat. The liquid expands significantly more than the glass tube, causing it to rise up the narrow, calibrated scale. This expansion allows for accurate temperature measurement.
Gas	Hot Air Balloon Lifting	Air (a gas mixture) inside the balloon's envelope is heated by a burner. The air expands, causing its volume to increase and its density to decrease (as the same mass now occupies a larger space). The less dense hot air provides lift by floating upward in the denser, cooler surrounding air.

Q.5 Describe one example each of Contraction in solids, liquid and gases.

State of Matter	Example of Contraction	Description
Solid	Overhead Power Lines/Cables in Winter	Metal wires, like electrical cables strung between poles, are deliberately left with some **slack** (sag) during warm weather. In the cold of **winter**, the metal contracts (gets shorter) significantly. The slack prevents the wires from becoming too taut and snapping or pulling down the poles.
Liquid	Falling Level in a Thermometer	When a thermometer is removed from a warm object and cools to room temperature, the liquid (mercury or alcohol) inside **contracts** (its volume decreases). This contraction causes the liquid column to fall back down the calibrated tube, indicating the drop in temperature.
Gas	Deflated Tires/Balloons in Cold Weather	When a car tire or an inflated balloon is exposed to very **cold weather** (e.g., overnight in winter), the gas (air) inside cools down. According to the gas laws, as the temperature decreases, the **volume** and/or **pressure** of the gas decreases, causing the tire or balloon to appear partially deflated or softer.