

Chapter 7

PHYSICAL AND CHEMICAL CHANGES

REVIEW EXERCISES

Q.1 Write short answers of the following questions:

- a) Differentiate between physical and chemical changes by giving at least two examples of each.

Ans:(1) Physical Change:

Physical change is a change in physical appearance or state of a substance. It does not affect the composition and the substance remains same before and after the change, for example breaking of bottle and cutting of paper into small pieces, only the shape and size of the glass bottle and paper is changed and no new substance is formed.

(2) Chemical Change:

Matter can undergo chemical changes. In a chemical change a substance is transformed into a different substance with new composition. A chemical change is a process where one or more substances are changed into one or more new and different substances. You have learnt in

Difference b/w Physical and Chemical Changes

No new substances are formed. Substance/material remains same and does not lose its major properties or identity.	• New substances are formed with different properties than the parent substances.
Generally reversible.	• Generally irreversible.
Usually not accompanied by energy change (except in changes in states).	• Usually accompanied by energy change.
Examples: changes in states, dissolving sugar in water, crushing a chalk into powdered form and melting of ice-cream.	• Example: burning of fuel, rusting of iron and heating sulphur with iron fillings to produce iron sulphide.

ii) **Write three examples of physical changes and three examples of chemical changes which you have observed in your home/school or locality.**

No.	Physical Changes	No.	Chemical Changes
1	Dissolving sugar in water	1	Burning of fuel
2	Melting of ice-cream.	2	Rusting of iron
3	Crushing a chalk into powdered form	3	Heating sulphur with iron filling to produce iron sulphide

iii) **Identify the type of change:**

- Dissolving a solid (sugar) in water**
- Mixing things together and**
- Separating mixtures.**

Ans:a) Dissolving sugar in water is a physical change.

- b) Mixing things together is chemical change.
c) Separating mixing is a physical change
2) **Give reasons for your answers.**
i) **Explain the use of hydrocarbon as fuels.**

Ans: Hydrocarbon:

Hydrocarbons are compounds made up of hydrogen and carbon which are one of the types of organic compounds. Organic compounds are the compounds of carbon. Simplest hydrocarbon is methane CH_4 (natural gas) or Sui gas which is used in homes and industries as a fuel. Hydrocarbons such as petrol, diesel and furnace oil are used as fuels and their burning is an example of chemical change. During this process energy is produced in the form of heat, and light.

- ii) **Why fertilizers are used by Farmer? What happens if fertilizer are used improperly.**

Ans: The substances that are added in the soil to make up any deficiency of nutrients are called fertilizers. The farmer use fertilizers because it is very important for growing crops; They release nutrients into the soil, as they contain required chemical. However, physical characteristics and nutrient content (chemicals) of fertilizers both are important. They determine how easily and uniformly the fertilizers spread during application. Excessive fertilizers may weaken a plant, promote disease invite pests and harming the environment.

- iii) **Describe the common properties of fertilizers.**

Ans: 1) Mostly fertilizer are made from carbon hydrogen and oxygen.

- 2) Particles of different fertilizer are of different sizes.

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- 3) A low density fertilizer will take up more space than the same weight of a high density.
- 4) Most fertilizers absorb water to a certain extent. However, if they take in too much water, it can be problematic.
- iv) ***Describe the simple process of making plastic.***

Ans: The Simple Process of Making Plastic:

Making a simple plastic we need following things.

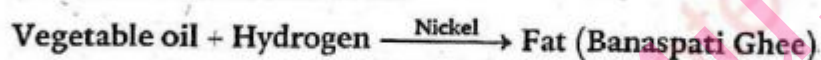
- White glue
- 2.bowls
- Water
- Borax powder (laundry detergent)
- Plastic spoon for stirring

Process:

- Dissolve one tea spoon of borax in water in the bowl.
 - Add half cup glue and half cup water in next bowl stir and mix it thoroughly.
 - Now add the glue mixture to borax solution and stir slowly.
 - Add a few drops of food coloring and mix it up.
 - The slime/polymer will begin to form immediately. Stir as much as we can, then knead it with our hands until it becomes less sticky. If water is left in the bowl, just pour it out.
 - Store the slime in a secure bag in a fridge; to avoid growing mold.
 - The white glue has an ingredient called polyvinyl acetate, which is a liquid polymer.
 - The slimy polymer plastic is fine to touch with our bare hands. Stretch it, mold it but it makes a great creepy plastic.
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v) **Explain how vegetable oil change into fat?**

Ans: Chemical process which changes vegetable oil into fat is called hydrogenation. The vegetable oil, is unsaturated it can add more hydrogen to its carbon backbone. When Hydrogen is passed through vegetable oil in the presence of nickel, it converts into solid nickel. In this way unsaturated vegetable oil converts into saturated fats and become, solid. Hydrogenation process is used for changing oil into banaspti ghee. After the reaction the nickel is removed.



Q.3 Fill in the blanks with suitable words.

- i) Melting of ice cream is a physical change.
- ii) The chemical changes is irreversible.
- iii) Mixing of sugar in water, is a physical change.
- iv) Melting of wax is a physical change.
- v) Physical changes are reversible.

Q.4 Choose the correct answer from the given choices.

- i) What is produced when fuel is burned?
(a) Carbon dioxide gas ✓ (b) Methane gas
(c) Oxygen gas
- ii) Burning of wood is a chemical change.
✓(a) Chemical (b) Physical
(c) Temporary
- iii) Oil can change into fat by Hydrogenation.
✓(a) Evaporation (b) Fertilization
✓(c) Hydrogenation
- iv) Fertilizers are used to fulfill the Nutritional requirements of plants.
✓(a) Nutritional (b) Reproductive
(c) Respiratory

Q.5 Identify and tick the reversible and irreversible change in the following.

S. No.	Statement	Reversible Change	Irreversible Change
1.	Bending of rubber	✓	
2.	Burning of wax	✓	
3.	Breaking of glass		✓
4.	Photosynthesis		✓
5.	Production of glucose		✓
6.	Water from Hydrogen and Oxygen		✓
7.	Conversion of ice into water	✓	
8.	Changing of paper into ash		✓
9.	Boiling of an egg		✓
10.	A mixture of salt and sand	✓	
11.	Glowing of electrical bulb		✓
12.	Dissolving sugar into water	✓	

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