

Textbook Questions

Q. 1. Classify the changes involved in the following processes as physical or chemical changes :

- (a) Photosynthesis
- (b) Dissolving sugar in water
- (c) Burning of coal
- (d) Melting of wax
- (e) Beating aluminium to make aluminium foil
- (f) Digestion of food.

Ans. (a) Chemical change

- (b) Physical change
- (c) Chemical change
- (d) Physical change
- (e) Physical change
- (f) Chemical change.

Q. 2. State whether the following statements are true or false. In case a statement is false, write the corrected statement in your notebook.

- (a) Cutting a log of wood into pieces is a chemical change. (T/F)
- (b) Formation of manure from leaves is a physical change. (T/F)
- (c) Iron pipes coated with zinc do not get rusted easily. (T/F)
- (d) Iron and rust are the same substances. (T/F)
- (e) Condensation of steam is not a chemical change. (T/F)

Ans. (a) False.

Correct statement : Cutting a log of wood into pieces is an irreversible physical change.

(b) False.

Correct statement : Formation of manure from leaves is a chemical change.

(c) True (d) False.

Correct substance : Iron and rust are two different chemical substances.

(e) True.

Q. 3. Fill in the blanks in the following statements :

(a) When carbon dioxide is passed through lime water, it turns milky due to formation of

(b) The chemical name of baking soda is

(c) Two methods by which rusting of iron can be prevented are and

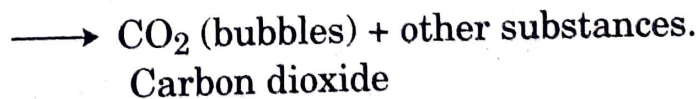
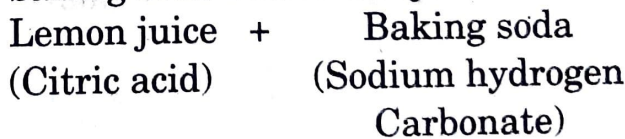
(d) Changes in which only properties of a substance changes are called physical changes.

(e) Changes in which new substances are formed are called changes.

Ans. (a) calcium carbonate, (b) sodium hydrogen carbonate, (c) painting or greasing, galvanization, (d) physical, (e) chemical.

Q. 4. When baking soda is mixed with lemon juice, bubbles are formed with the evolution of gas. What type of change is it? Explain.

Ans. The equation for the reaction between baking soda and lemon juice is—



This is a chemical change.

Q. 5. When a candle burns, both physical and chemical changes take place. Identify these changes. Give another example of a familiar process in which both the chemical and physical changes take place.

Ans. When a candle burns, both physical and chemical changes take place :

1. Physical change is the melting of wax and vaporization of melted wax.
2. Chemical change is burning of wax to give carbon dioxide, heat and light.

LPG is an example of physical and chemical change both taking place together. When LPG comes out of a cylinder, it is converted from liquid to gaseous state which is a physical change.

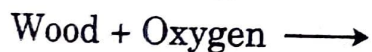
When this gas burns in air, it is a chemical change.

Q. 6. How do you show that setting of curd is a chemical change ?

Ans. Setting of curd is a chemical change as curd is the new substance formed from the original substance milk with different taste, smell and chemical properties.

Q. 7. Explain why burning of wood and cutting it into small pieces are considered as two different types of changes.

Ans. Burning of wood may be represented as



Charcoal + Carbon dioxide + Heat + Light.

This is a chemical change as new substances are formed.

Cutting of wood into small pieces is a physical change as no new substance is formed, only size of the wood is reduced.

Q. 8. Describe how crystals of copper sulphate are prepared.

Ans. Take a cup full of water in a beaker and add a few drops of dilute sulphuric acid. Heat the water and when it starts boiling add copper sulphate powder slowly while continuously stirring. Continue adding copper sulphate

powder till no more powder can be dissolved. Filter the solution and allow it to cool. After some time crystals of copper sulphate solution can be seen.

Q. 9. Explain how painting of an iron gate prevents it from rusting.

Ans. Rusting is caused due to the reaction of iron with oxygen and moisture in the atmosphere. By painting the gate its contact of iron with oxygen and moisture is cut off and hence rusting is prevented.

Q. 10. Explain why rusting of iron objects is faster in coastal areas than in deserts.

Ans. In coastal areas, the content of moisture is higher in comparison to deserts, hence the rusting of iron objects is also faster.

Q. 11. The gas we use in kitchen is called liquefied petroleum gas (LPG). In the cylinder it exists as a liquid. When it comes out from the cylinder it becomes a gas (change - A) then it burns (change - B). The following statements pertain to these changes. Choose the correct one.

- (i) Process - A is a chemical change.
- (ii) Process - B is a chemical change.
- (iii) Both processes A and B are chemical changes.
- (iv) None of these processes is a chemical change.

Ans. (ii) Process - B is a chemical change.

Q. 12. Anaerobic bacteria digest animal waste and produce biogas (change - A). The biogas is then burnt as fuel (change - B). The following statements pertain to these changes. Choose the correct one.

- (i) Process - A is a chemical change.
- (ii) Process - B is a chemical change.
- (iii) Both processes A and B are chemical change.
- (iv) None of these processes is a chemical changes.

Ans. (iii) Both processes A and B are chemical changes.