

Class Notes

Class: VII

Topic: CHAPTER 6

PHYSICAL AND CHEMICAL CHANGES

Subject: SCIENCE

BOOK EXERCISES AND EXTRA

QUES/ANSWERS

TO BE WRITTEN IN SCIENCE NOTES COPY

Q1. Classify the changes involved in the following processes as physical or chemical changes:

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

Q2. 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 - False

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

(b) Formation of manure from leaves is a physical change – False

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

(c) Iron pipes coated with zinc do not get rusted easily – True

(d) Iron and rust are the same substances - False

Correct statement: Iron and rust are two different substances. Rust is the oxide of iron.

(e) Condensation of steam is not a chemical change - True

Q3. Fill in the blanks in the following statements:

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

(b) The chemical name of baking soda is sodium hydrogen carbonate.

(c) Two methods by which rusting of iron can be prevented are **painting** and **galvanization**.

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

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

Q4. When baking soda is mixed with lemon juice, bubbles are formed with the evolution of a gas. What type of change is it? Explain.

Ans- (i) When baking soda (sodium bicarbonate) is mixed with lemon juice (citric acid), a chemical change takes place.

(ii) In this reaction new substances like carbon dioxide is formed and heat is evolved.

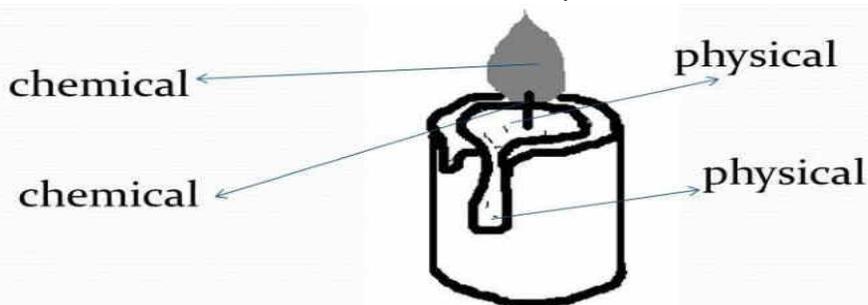
This change is chemical and irreversible.

Lemon juice (citric acid) + Baking soda (sodium bicarbonate) \implies Sodium citrate + carbon dioxide + water + heat

Q5. 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- Physical change – The melting of wax is a physical change because on cooling the melted wax becomes solid again.

Chemical change – The burning of wax is a chemical change because new substances like carbon dioxide, soot and water vapour are formed.



- **Conclusion: both chemical and physical reactions occur when a candle burns**

Cooking of food is another example in which both chemical and physical change takes place. Raw vegetables getting cooked is a chemical change and changing of water of the vegetables into steam is a physical change.

Q6. How would you show that setting of curd is a chemical change?

Ans- Setting of curd is a **chemical change** because we cannot get the original substance (milk) back. The new substance formed is curd which is different from milk in taste, smell and chemical properties.

Q7. Explain why burning of wood and cutting it into small pieces are considered as two different types of changes?

Ans- Burning of wood is a **chemical change** because during burning new substances are formed and we cannot get back the original substance (wood) back.

Cutting of wood into small pieces is a physical change because no new substances are formed.

Q8. Describe how crystals of copper sulphate are prepared.

Ans- Crystals of copper sulphate are prepared in the following way:

1. Take a cup full of water in a beaker.
2. Add few drops of dilute sulphuric acid.
3. Heat the water.
4. On boiling add copper sulphate powder slowly and stir continuously.
5. Continue adding copper sulphate powder till the solution becomes saturated.
6. Filter the solution and allow it to cool.
7. The solution should be kept undisturbed.
8. Slowly the copper sulphate crystals separate out.

Q9. Explain how painting of an iron gate prevents it from rusting.

Ans: The presence of oxygen and moisture is essential for rusting. Painting prevents the iron gate from coming in contact with oxygen and moisture and thus prevents rusting.

Q10. Explain why rusting of iron objects is faster in coastal areas than deserts.

Ans: For the process of rusting, the presence of both oxygen and water (water vapour) is essential. In coastal areas, the air contains high moisture which means **more humid environment** and rusting becomes faster.

Whereas in desert areas moisture in the air is less, hence rusting of iron is very slow there.

Q11. The gas we use in the kitchen -----is a chemical change (write question from the book)

Ans: **(b) Process B is a chemical change.**

Reason: Process A is a physical change. The LPG in cylinder is in liquid form. When it comes from cylinder, it turns into gas. It is a physical change.

Process B is a chemical change because burning of gas is a chemical change.

Q12. Anaerobic bacteria digest -----is a chemical change (write question from the book)

Ans: **(c) Both processes A and B are chemical changes.**

Reason: Bacteria acts on waste and convert it to biogas (change A). Hence, it is a chemical change. During biogas production it works as a fuel (change B) and produces CO₂ and heat. Hence, both processes A and B are chemical changes.

CHAPTER 6-PHYSICAL AND CHEMICAL CHANGES-EXTRA QUESTION ANSWERS

Q1. Why a chemical change cannot be normally reversed?

*Ans: In a chemical change the products formed are different with **different chemical properties** from the reactants. So a chemical change cannot be normally reversed.*

Q2. What happens when an iron blade of knife is dipped in copper sulphate solution? What kind of change takes place?

*Ans: When an iron blade of a knife is dipped in copper sulphate solution, iron blade is coated with reddish brown deposits of copper and blue colour of copper sulphate solution changes to light green due to the **formation of iron sulphate**. So, it is a chemical change.*

(Draw figure 6.4 from the book)

Q3. Is cloud formation a physical change or a chemical change? Explain.

*Ans: Formation of clouds is a **physical change**.*

Reason: Clouds are formed by the condensation of water vapour(change in state) present in the atmosphere. This water goes back on the earth in the form of rain. No new product is formed. Therefore, it is a physical change.

Q4. Explosion of a cracker is a chemical change. Explain.

*Ans: When we burn a cracker it explodes. Explosion **produces heat, light, sound and unpleasant gases** that pollute the atmosphere. As new substances are formed in explosion of the cracker, so it is considered as a chemical change.*

Q5. What is galvanisation?

*Ans: The process of **depositing a layer of zinc** on iron objects is called as galvanisation.*

THE ABOVE CONTENT IS PREPARED AT HOME