

UNIT: 3 CHANGES AROUND US

CLASS: VII

SUBJECT: SCIENCE

I. Choose the best answer

- When a woolen yarn is knitted to get a sweater, the change can be classified as _____.
 - physical change
 - chemical change
 - endothermic change
 - exothermic change
- _____ of the following are endothermic changes.
 - Condensation and melting
 - Condensation and freezing
 - Evaporation and melting
 - Evaporation and freezing
- The chemical change is _____.
 - water to clouds
 - growth of a tree
 - cow dung to bio-gas.
 - ice-cream to molten ice-cream.
- _____ is an example of a periodic change.
 - Earthquake.
 - Formation of rainbow in sky
 - Occurrence of tides in seas.
 - Showering of rain
- _____ is not a chemical change.
 - Dissolution of ammonia in water
 - Dissolution of carbon-di-oxide in water
 - Dissolution of oxygen in water
 - Melting of polar ice caps

II. Fill in the blanks

- Filling up a balloon with hot air is a physical change.
- Stretching gold coin into a ring is a physical change.
- Opening a gas cylinder knob converts liquid fuel into gaseous fuel. This is an example of chemical change.
- Spoiling of food is a chemical change.
- Respiration is a exothermic chemical change.

III. True or False. If false, give the correct answer.

- Cutting of cloth is an example of a periodic change. **False**
- Taking a glass of water and freezing it by placing it in the freezer is a chemical change. **False**
- A bean plant collecting sunlight and turning it into bean seeds is an example of physical and non-periodic change. **False**
- If the chemical properties of a substance remain unchanged and the appearance or shape of a substance changes it is called a periodic change. **False**
- Tarnishing of silver is an example of endothermic change. **False**

IV. Match the following:

1.Melting	Change of state from solid to liquid	Ice cube to water
2. Condensation	Change of state from gas to liquid	Steam to water drops
3. Evaporation	Change of state from liquid to gas	Water to steam
4.Freezing	Change of state from liquid to solid	Formation of ice cube
5.Periodic change	Occurs at regular time intervals	Ticking of clock
6.Non-Periodic change	Occurs at irregular time	Collecting flowers

V. Classify the following changes as physical and chemical changes

A rough piece of wood is sanded and polished resulting in change in texture, Rusting of a iron nail, Painting the grill, Bending a paper clip, Pounding silver into thin plate, Rolling the chappathi dough into thin wire, Occurrence of day and night, eruption of volcano, burning of matchstick, dosa from the batter, blinking of eyelids, occurrence of a thunderstorm, rotation of the earth, formation of eclipses.

Physical changes:

- ❖ Bending a paper clip.
- ❖ Pounding silver into thin plate.
- ❖ Rolling a chappathi dough into thin wire.
- ❖ Occurrence of a day and night.
- ❖ Blinking of eyelids.
- ❖ Occurrence of a thunderstorm.
- ❖ Rotation of the earth.
- ❖ Formation of eclipses.
- ❖ Painting the grill.
- ❖ A rough piece of wood is sanded and polished resulting in change in texture.
- ❖ Dosa from the batter.

Chemical changes:

- ❖ Rusting of a iron nail,
- ❖ Eruption of volcano
- ❖ Burning of matchstick.

VI. Analogy

- ❖ Physical Change: Boiling::Chemical Change: Burning.

- ❖ Wood to saw dust: **Physical change** :: Wood to Ash: Chemical change
- ❖ Forest fire: **Non-periodic** change :: Change in period in a school: periodic change

VII. Very short answer type question

1. State two examples of periodic changes.

Rotation and Revolution of earth, beating of the heart, clock striking every hour, motion of the seconds-hand / minute-hand / hourhand of a clock are some examples of periodic changes.

2. Mention any two exothermic reactions.

The burning of magnesium ribbon gives out heat and light. Similarly, burning of wood also releases heat and light. Such changes in which heat is released are known as exothermic changes.

3. Cold milk is heated and it becomes hot. Which type of change it is?

Reversible.

4. What type of change is artificial ripening of fruit?

Irreversible chemical change.

5. What type of change is colouring of a paper?

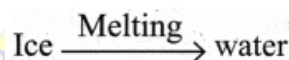
Physical change.

6. Growing of nails is a periodic change. Why?

Growing of nail is a periodic change, because it occurs periodically at regular intervals.

7. What type of energy changes is associated when ice melts?

- ❖ Physical change
- ❖ Endothermic (heat energy is absorbed)



VIII. Short answer type question

1. Distinguish physical and chemical changes.

Physical changes:

- ❖ No new substance is formed
- ❖ Reversible
- ❖ Change in physical properties like size, shape, state
- ❖ Melting of ice, tearing of paper, freezing, evaporation, vaporization

Chemical changes:

- ❖ New substance is formed
- ❖ Irreversible
- ❖ Change in properties of reactants and products
- ❖ Burning of paper, photosynthesis, digestion of food, rusting of iron

2. How can a change occur in a substance?

The change involves an alteration in the properties such as colour, texture and the state of the substance since there is formation of a new substance.

3. Can you suggest a method to collect water from sea water?

Evaporation.

4. Is solar eclipse a periodic change? Give your reason.

Yes, solar eclipse is a periodic change as it occurs after a definite interval of time.

5. What is the difference between dissolution of sugar and burning of sugar?

Dissolution of sugar:

- ❖ When sugar is dissolved in water it disappears. If we taste the solution, the sugar is still present in dissolved form.
- ❖ If water is evaporated we get back the sugar.
- ❖ So it is a physical and reversible change.

Burning of sugar:

- ❖ Fire activates a chemical reaction between sugar and oxygen. The oxygen in the air reacts with the sugar as the chemical bonds broke.
- ❖ Energy is released in the form of smoke.
- ❖ So, burning a sugar is a chemical change.

IX. Long answer type question

1. Explain the following statement: Digestion is a chemical change.

- ❖ When we eat, our mouth physically break down food into small pieces.
- ❖ Mechanical digestion occurs in the mouth, stomach and small intestine.
- ❖ Food is chemically changed in digestion when new, smaller substances are formed.
- ❖ Moreover, we will never be able to get back the raw material in the same form as it was before.
- ❖ Digestion of food is a permanent change which is irreversible.

2. How the iron blade is fixed into a wooden handle in tools used to dig the soil?

- ❖ First the ring in the iron blade of spade is heated.
- ❖ Heating of the blade leads to its expansion and thus the ring gets bigger.
- ❖ This happens because metals always expand on heating.
- ❖ The metal blade is then fitted easily into the wooden handle.
- ❖ After this, cold water is usually poured on the iron blade which leads to the contraction of the expanded iron blade.

- ❖ The spade can also be left to cool down, undisturbed so that it is firmly fixed, (vu) The blade is attached firmly to the wooden handle of a spade in this process.

X. Higher order Thinking questions

1. Peeled and unpeeled banana does not look the same. Does that mean peeling banana is a chemical change?

No, it is not a chemical change. We just separated the skin of the banana and there is no change in its composition..

2. A very hot glass on putting in cold water cracks. What does this change indicate?

- ❖ When hot glass is cooled fast, the glass cools down unevenly and therefore cause the glass to crack because inside contracts while the outside remains expanded.
- ❖ Glass expands when hot and contracts when cold. It's a physical but irreversible change.

3. Boiling of water is a physical change; but boiling of egg is a chemical change. Why?

Boiling of water is a physical change:

- ❖ On boiling, water is converted into steam. If we cover the beaker with a lid, steam condenses back to water. So, boiling, of water is a physical change since only the physical state of water changes.

Boiling of egg is chemical change:

- ❖ When egg is boiled, chemical nature of the egg changes. The properties of a boiled egg are totally different from the raw egg. Hence, boiling of an egg is a chemical change.

XI. Assertion - Reason type question

1. Assertion: The explosion of fire cracker is a physical change.

Reason: A physical change is a reversible change.

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is not the correct explanation of A.
- c. A is true but R is false.
- d. A is false but R is true.

2. Assertion: The process of conversion of liquid water to its vapours by heating the liquid is called boiling.

Reason: The process of conversion of water vapours to liquid by cooling the vapours is called condensation.

- a. Both A and R are true and R is the correct explanation of A.

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

3. Assertion: Burning of wood log to charcoal is a physical change.

Reason: The products formed of burning a piece of wood can be easily converted back to wood log.

a. Both A and R are false

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

4. Assertion: The formation of iron oxide from iron is a chemical change.

Reason: For the rust to form from iron, it must be exposed to air and water.

a. Both A and R are true and R is the correct explanation of A.

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

5. Assertion: A drop of petrol when touched with finger gives a chill feeling.

Reason: The above phenomenon is an endothermic one.

a. Both A and R are true and R is the correct explanation of A.

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

XII. Picture based question

1. Observe the picture and list down the changes that are accompanied in the picture.

(a) Physical change

(b) Chemical change

(c) Exothermic



2. Observe the picture containing a kettle and note that it has salt water in it and answer the following questions:

a) What is name of the process that is done to the kettle? **Boiling**

b) What will happen to the content of the kettle?

Water in the kettle gets converted into vapour.



c) What kind of change is occurring on the cold surface of the metal plate?

Endothermic

d) What can you say about the quality of water that is obtained in the beaker?

Water vapour converted into liquid (condensation).