

Changes Around us

1. Exercise

Multiple Choice Questions

1. Which of the following is a reversible change?
(a) Change of raw egg to boiled egg
(b) Change of stretched rubber band to its normal size.
(c) Change of bud to flower
(d) None of these
2. Any change in which the original substance can be obtained by reversing conditions is known as a
(a) reversible change (b) periodic change
(c) physical change (d) Both (a) and (c)
3. The melting of wax is an example of
(a) physical change (b) chemical change
(c) reversible change (d) Both (a) and (c)
4. Burning of candle is a
(a) physical change (b) chemical change
(c) periodic change (d) Both (a) and (b)
5. When a woolen yam is knitted to get a sweater, the change can be classified as
(a) physical change
(b) chemical change
(c) exothermic change
(d) endothermic change
6. The change of milk to curd, when we add a small quantity of curd to milk, can be classified as
(a) Fast change (b) slow change
(c) periodic change (d) None of these
7. Which of the following are endothermic change?
(a) Condensation and melting
(b) Condensation and freezing
(c) Evaporation and melting
(d) Evaporation and freezing
8. The change of bud to flower is a/an
(a) physical change
(b) reversible change
(c) irreversible change
(d) None of these
9. Which of the following is a periodic change?
(a) Change of season
(b) Phases of moon
(c) Beating of human heart
(d) All of these
10. A chemical change is one which occurs with
(a) the formation of new substances
(b) the evolution or absorption of energy
(c) Both the above
(d) None of these
11. A change is called physical change because in it
(a) only change in physical properties takes place
(b) transfer of energy takes place
(c) can be easily reversed
(d) All of the above
12. Select the one that is a chemical change.
(a) rusting of iron
(b) tearing of paper
(c) Both of these
(d) None of these
13. Select a reversible change.
(a) milk to paneer
(b) growth of a tree
(c) cow-dung to biogas
(d) ice-cream to molten ice cream
14. Which one is a periodic change?
(a) Earth-quake
(b) Formation of rainbow in sky
(c) Occurrence of tides in seas
(d) None of these
15. Select the one that represents a periodic change.
(a) Occurrence of tides
(b) Opening of a morning glory flower
(c) Both the above
(d) None of these
16. The change of a ball of dough to a rolled out roti is a
(a) physical change (b) chemical change
(c) periodic change (d) None of these
17. An aeroplane was cut out from a rectangular sheet of paper. The change involved is a
(a) physical change (b) temporary change
(c) irreversible change (d) None of these
18. Which type of change takes place when a rolled roti is baked on tawa?
(a) physical change (b) permanent change
(c) periodic change (d) None of these

- 19.** What type of change is used for fixing a metal rim on a wooden wheel of a cart?
 (a) physical change (b) chemical change
 (c) Both the above (d) None of these
- 20.** Heating of wax in a pan is a
 (a) reversible change
 (b) irreversible change
 (c) permanent change
 (d) None of these
- 21.** The dissolution of salt in water is a
 (a) reversible change
 (b) irreversible change
 (c) chemical change
 (d) periodic change
- 22.** Select the one that is not a chemical change.
 (a) dissolution of ammonia in water
 (b) dissolution of carbon dioxide in water
 (c) dissolution of oxygen in water
 (d) None of these
- 23.** Which one is reversible change?
 (a) melting of ice candy
 (b) cooking of food
 (c) ripening of mango
 (d) None of these
- 24.** Cooking of an egg in boiling water containing salt is a
 (a) permanent change
 (b) temporary change
 (c) irreversible change
 (d) Both (a) and (c)
- 25.** Condensation is a physical change, why?
 (a) Vapour turns into liquid
 (b) No heat is required
 (c) It happens automatically
 (d) No new substance is formed
- 26.** Which of the following is a natural change?
 (a) Cutting hair (b) graying hair
 (c) Oiling hair (d) colouring hair
- 27.** Choose the correct alternative to complete the given analogy. Physical change : Boiling : : Chemical change: _____
 (a) Melting (b) Burning
 (c) Condensing (d) Evaporating
- 28.** Which of the following is a reversible change?
 (a) Ripening of the fruit
 (b) Melting of ice
 (c) Burning of paper
 (d) Converting wood into saw dust
- 29.** What is difference between making of furniture from wood and burning of wood?
 (a) First is irreversible and second is reversible change
 (b) First is physical and second is chemical change
 (c) First is fast and second is slow change
 (d) First is periodic and second is non-periodic change
- 30.** A change that results in formation of new substances and can't be reversed easily is known as a
 (a) physical changes (b) chemical changes
 (c) reversible changes (d) None of these
- 31.** A physical change is a
 (a) is a temporary change
 (b) change in which no new substance is formed
 (c) reversible change
 (d) All the above are correct
- 32.** Evaporation is
 (a) physical change
 (b) temporary change
 (c) a change in state of matter
 (d) All the above
- 33.** A periodic change is a change
 (a) that gets repeated many a times in our life
 (b) that gets repeated after a certain definite interval
 (c) that never gets repeated
 (d) All the above
- 34.** Exothermic change is
 (a) accompanied by release of energy
 (b) accompanied by absorption of energy
 (c) a change in which heat energy is neither released nor absorbed
 (d) All the above
- 35.** What happens to the metals on heating:
 (a) They expand
 (b) They contract
 (c) They remain unaffected
 (d) None of these
- 36.** Which of the following is not a man-made change?
 (a) Burning of fuels
 (b) Change of day and night
 (c) Drying of clothes
 (d) Formation of curd from milk

- 37.** Which of the following is an example of chemical change?
 (a) Filling up a balloon with hot air.
 (b) Taking a glass of water and freezing it by placing it in the freezer.
 (c) A plant collecting sunlight and turning it into food.
 (d) None of these
- 38.** When a new substance is formed with different properties than the original substance it is called
 (a) chemical change (b) physical change
 (c) freezing (d) boiling
- 39.** If the chemical properties of a substance remain unchanged and the appearance or shape of a substance changes it is called a
 (a) chemical change (b) physical change
 (c) slow change (d) periodic change
- 40.** Which is an example of a physical change?
 (a) Metal rusting (b) Silver tarnishing
 (c) Water boiling (d) Paper burning
- 41.** Which is an example of chemical change?
 (a) Water freezes (b) Wood is cut
 (c) Bread is baked (d) Wire is bent
- 42.** Find the odd one out.
 (a) crushing (b) pulling
 (c) burning (d) tearing
- 43.** Artificial ripening of fruit is a
 (a) reversible change (b) periodic change
 (c) irreversible change (d) fast change
- 44.** Which of the following is a chemical change to a piece of paper?
 (a) Colouring (b) Burning
 (c) Folding (d) Tearing
- 45.** Choose the correct alternative to complete the given analogy.
 Change in period in a school: Periodic change::_____: Non periodic change
 (a) Heart beating
 (b) Formation of day and night
 (c) Forest fire
 (d) Change in phases of moon
- 46.** Find the odd one out.
 (a) Cutting of nails
 (b) Breaking of glass
 (c) Formation of ash from paper
 (d) Tearing of paper

- 47.** During which of the following changes a new substance is formed?
 (a) Cooking (b) Melting
 (c) Freezing (d) Crushing
- 48.** Physical changes are usually
 (a) periodic changes
 (b) a change in state of matter
 (c) fast changes
 (d) a change in composition

DIRECTIONS: Match column-I with Column-II and select the correct answer using the code given below the columns.

49.

Column-I	Column-II
(a) Melting	(p) Change of state from liquid to solid
(b) Condensation	(q) Change of state from liquid to gas
(c) Evaporation	(r) Change of state from solid to liquid
(d) Freezing	(s) Change of state from gas to liquid

- (a) $A \rightarrow (p), B \rightarrow (q), C \rightarrow (r), D \rightarrow (s)$
 (b) $A \rightarrow (s), B \rightarrow (r), C \rightarrow (q), D \rightarrow (p)$
 (c) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$
 (d) $A \rightarrow (q), B \rightarrow (p), C \rightarrow (s), D \rightarrow (r)$

50.

Column-I	Column-II
(a) Burning of carbon in air to produce carbon dioxide	(p) Endothermic change
(b) Melting of wax	(q) Exothermic change
(c) A change accompanied by absorption of heat	(r) Physical change
(d) A change accompanied by evolution of heat	(s) Chemical change

- (a) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (p), D \rightarrow (r)$
 (b) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (p), D \rightarrow (r)$
 (c) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$
 (d) $A \rightarrow (r), B \rightarrow (q), C \rightarrow (s), D \rightarrow (p)$

51.

Column-I	Column-II
(a) On heating iron rod	(p) It melts
(b) On cooling water vapour	(q) Expands
(c) On heating candle wax	(r) Salt and Sugar
(d) Dissolves easily in water	(s) It condenses

- (a) $A \rightarrow (q); B \rightarrow (s); C \rightarrow (p); D \rightarrow (r)$
 (b) $A \rightarrow (s), B \rightarrow (r), C \rightarrow (p), D \rightarrow (q)$
 (c) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$
 (d) $A \rightarrow (r), B \rightarrow (q), C \rightarrow (s), D \rightarrow (p)$

Passage Based Questions

DIRECTIONS: Read the passage (s) given below and answer the questions that follow

Passage -1

For changing milk into curd we add a small quantity of curd into milk. The milk is stirred and is set aside for a few hours at a warm place. In a few hours the milk changes into curd.

52. The change of milk into curd is a
(a) physical change (b) chemical change
(c) periodic change (d) None of the above
53. The change of milk into curd is a
(a) slow change
(b) fast change
(c) exothermic
(d) endothermic change
54. Chemical changes are generally
(a) reversible change
(b) irreversible change
(c) periodic change
(d) None of these

Passage -2

Sheetal once preparing evening tea. In the mean while telephone bellrings and she rushed upto attend telephone call. She got busy on phone and sudden heard a sound from kitchen. When she enter back in kitchen. She saw that tea water was boiling with steal over it and cover of tea container is flew a side with water droplets over it.

55. Why cover of tea kettle flew away?
(a) Not properly tight
(b) Tea is explosive in nature
(c) Pressure of steam
(d) None of these
56. Water droplets on cover of tea container represents
(a) condensation (b) evaporation
(c) melting (d) freezing
57. Steam over tea represents phenomena of
(a) condensation (b) Boiling
(c) Fusion (d) None of these

DIRECTIONS: The questions in this segment consists of two statements, one labelled as "Assertion A" and the other labelled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the

reason is a correct explanation of the assertion. Select your answers to these items using codes given below

- (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.

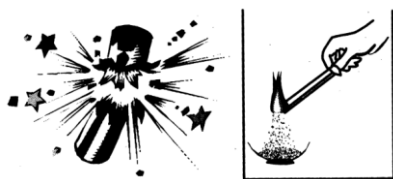
58. **Assertion (A):** The explosion of a fire cracker sis a physical changes.
Reason (R): A physical change is a reversible change.
59. **Assertion (A):** The process of conversion of liquid water to its vapours by heating the liquid is called boiling.
Reason (R): The process of conversion of water vapours to liquid by cooling the vapours is called condensation.
60. **Assertion (A):** Burning of paper is a physical change.
Reason (R): The products formed on burning of paper cannot be easily converted back to paper.
61. **Assertion (A):** The formation of rust is a chemical change.
Reason (R): For the formation of rust iron must be exposed to air and water.

DIRECTIONS: Read the following two statements carefully and choose the correct option.

- (a) Statement (i) is correct while statement (ii) is in correct.
(b) Statement (ii) is correct while statement (i) is incorrect.
(c) Both statements are correct.
(d) Both statements are incorrect.
62. (i) Rusting of iron is a chemical change.
(ii) The change of liquid water to ice on cooling is a reversible change.
63. (i) Change of liquid water to steam, on boiling, is an irreversible change.
(ii) Beating of human heart is a non-periodic change.

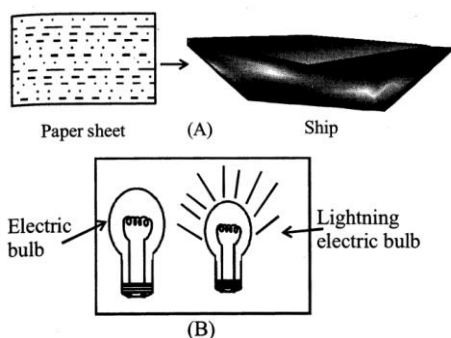
Figure Based Questions

64. In the figures below the change occurring is a



- (a) physical change
(b) chemical change
(c) periodic change
(d) None of these

65. Carefully observe the figures below and choose the correct



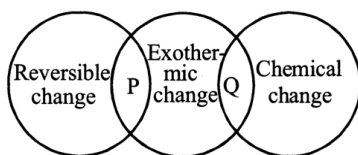
- (a) Both the changes show in 'A' and 'B' are irreversible
(b) Both the changes 'A' and 'B' are reversible
(c) 'A' is reversible but 'B' is irreversible
(d) 'A' is irreversible but 'B' is reversible

66. Look at the picture given below. What kind of change is shown in the picture? Choose the correct option.



- (a) Irreversible change, melted wax cannot be solidified again.
(b) Reversible change, melted wax can be solidified again.
(c) Periodic change, candle melts after an interval of an hour.
(d) Chemical change, melting of candle wax results in change in composition of candle.

DIRECTIONS (Q. 67-68): Look at the following diagram and answer the following question.



67. Which of the following represents 'P'?
- (a) Freezing of water into ice
(b) Burning of coal

- (c) Cooking of food
(d) Bursting of cracker

68. Which of the following represents 'Q' in the above diagram?
- (a) Crushing of ice
(b) Cooking of food
(c) Explosion of a bomb
(d) Melting of ice

2-Exercise

Multiple Choice Questions

- The burning of magnesium in air is accompanied by production of heat and light. This can be classified as
 - physical and exothermic change
 - chemical and exothermic change
 - physical and endothermic change
 - chemical and endothermic change
- To fix up the fractured bone a paste made of plaster of parts (POP) is used as a coating over the bandage on the fractured bone. After some time the plaster becomes hard and dry. This change in POP can be classified
 - physical change
 - permanent change
 - change of state of mater
 - None of these
- Consider the following changes and select the option that can be used to classify these.
 - stretching of rubber band
 - cooking of food
 - heating of milk
 - stretching of spring
 - burning of paper
 - periodic and non-periodic change
 - physical and chemical change
 - expansion and contraction
 - None of these
- A list of changes is given below. Identify their type and choose correct option.
 - Boiling of egg.
 - Making curd from milk
 - Flowering of bud
 - Making flour from grain
 - (i), (ii), (iii) and (iv) are irreversible changes
 - (i) and (iv) are chemical changes
 - (i), (ii), and (iv) are natural changes
 - (ii), (iii) and (iv) are periodic changes
- In an experiment the following changes were observed, (i) It was accompanied by change in

- colour (ii) It was accompanied by a change in temperature (iii) It was accompanied by a change in energy. The change involved can be classified as a
- periodic change
 - non-periodic change
 - physical change
 - chemical change
- The melting of gold is a physical change because
 - melted gold is still gold but in different form
 - no new substance is formed in it
 - on cooling melted gold returns back to its original state
 - All the above
 - Why is spoiling of food considered a chemical change?
 - In it the food changes from one chemical substance to another
 - It is not possible to get original food from spoiled food
 - It is a permanent change
 - All the above
 - Why is earthquake considered a non-periodic change?
 - Its occurrence is possible at any time.
 - It occurs rarely at some places.
 - It occurs only in certain quake prone areas.
 - None of above
 - 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.
 - Process A is a chemical change
 - Process B is a chemical change
 - Both processes A and B are chemical changes
 - None of these processes is a chemical change.
 - If few drops of petroleum are poured on your palm, you feel cool as the petrol evaporates. This change is
 - slow change
 - chemical reaction
 - endothermic change
 - periodic change
 - Which of the following is an example of physical change?
 - Mixing baking soda and vinegar together, and this causes bubbles and foam.
 - A glass cup falls from the counter and shatters on the ground.
 - Lighting a piece of paper on fire and the paper burns up and leaves ashes.
 - Baking a birthday cake for your mother.
 - Find the odd one out.
 - respiration
 - digestion
 - photosynthesis
 - freezing
 - What new material is formed when a candle burns?
 - Melted wax
 - Water vapour
 - Carbon dioxide
 - Both (b) and (c)
 - In which of the following cases is heat energy released?
 - When ice melts
 - When water freezes to ice
 - When water vapour condenses into liquid water
 - When water evaporate into water vapours
 - (A), (B) and (C)
 - (B), (C) and (D)
 - (B) and (C)
 - All of these
 - Ramesh wants to buy a clay pot. For which he went to a potter. Ramesh asked potter to make Z pot of his desired design, shape and size. Will potter be able to do this? This is an example of which kind of change?
 - Yes, physical change
 - Yes, chemical change
 - No, physical change
 - No, chemical change
 - Peeled and unpeeled banana doesn't look same Does that means peeling banana is a chemical change?
 - No, we just separated skin of banana and there is no change in its composition.
 - Yes, through peeling a new product is formed.
 - Yes, both chemical and physical change happen here
 - No, neither chemical nor physical change happen here.
 - Do you think we break molecules when we turn chalk into chalk powder?
 - Yes, chalk powder is formed by breaking chalk into small pieces.
 - Yes, because formation of chalk powder is a chemical change.
 - No because no new substance is formed molecules of chalk and chalk powder are same.
 - Yes, because chalk is bigger in size than particles of chalk powder.

18. Which of the following are examples of chemical changes?

- (A) Cutting of wood
(B) Burning of wood
(C) Baking of cake
(D) Growth in plants and animals
(a) (A) and (D) (b) (B) and (C)
(c) (A), (B) and (C) (d) (B), (C) and (D)

19. Charcoal burning on the grill is an example of
(a) physical change (b) chemical change
(c) periodic change (d) reversible change

20. During burning of paper which of the following acts as reactant?
(a) Flame (b) Ash
(c) Paper (d) None of these

21. Find the odd one out.
(a) Permanent change
(b) Reversible
(c) Change in composition
(d) Formation of new substance

22. A very hot glass on putting under cold water cracks. This change is due to _____.
(a) expansion
(b) contraction
(c) formation of new substance
(d) None of these

DIRECTIONS: Match Column-I with column -II and select the correct answer using the codes given below the column.

23.

Column-I	Column-II
(a) Formation of day and night	(p) Chemical change
(b) Ripening of a mango	(q) Physical change
(c) Dissolving of sugar in water	(r) Periodic change
(d) Occurrence of rainbow	(s) Non-periodic change

- (a) $A \rightarrow (p), B \rightarrow (r), C \rightarrow (q), D \rightarrow (s)$
(b) $A \rightarrow (q), B \rightarrow (r), C \rightarrow (p), D \rightarrow (r)$
(c) $A \rightarrow (r), B \rightarrow (q), C \rightarrow (s), D \rightarrow (p)$
(d) $A \rightarrow (r), B \rightarrow (p), C \rightarrow (q), D \rightarrow (s)$

24.

Column-I	Column-II
(a) The process of photosynthesis	(p) This process involves reversible and irreversible process respectively
(b) Change in phases of moon	(q) This process involves presence of sunlight
(c) Candle wax melts and	(r) This is the process

burns at same time	which involves physical and chemical change respectively
(d) Cutting wood for furniture and burning of wood	(s) This process occur after a fixed interval of time

- (a) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (p), D \rightarrow (r)$
(b) $A \rightarrow (q), B \rightarrow (s), C \rightarrow (p), D \rightarrow (r)$
(c) $A \rightarrow (p), B \rightarrow (s), C \rightarrow (q), D \rightarrow (r)$
(d) $A \rightarrow (s), B \rightarrow (p), C \rightarrow (q), D \rightarrow (r)$

25.

Column-I	Column-II
(a) Crushing of an ice cube	(p) periodic change
(b) Making of curd	(q) Slow change
(c) Germination of seed into plant	(r) Physical change
(d) Formation of day and night	(s) Chemical change

- (a) $A \rightarrow (s), B \rightarrow (r), C \rightarrow (q), D \rightarrow (p)$
(b) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$
(c) $A \rightarrow (s), B \rightarrow (r), C \rightarrow (p), D \rightarrow (q)$
(d) $A \rightarrow (r), B \rightarrow (p), C \rightarrow (q), D \rightarrow (s)$

Passage Based Questions

DIRECTIONS: Read the passage (s) given below and answer the questions that follow

Passage -1

Copper statues exposed to carbon dioxide and water in the air become coated with patina. The patina is not copper, it is not carbon dioxide, and not water. It is a new substance formed by the reaction of these chemicals with one another.

26. The appearance of patina on copper statues when these are exposed to moist air is which type of change?

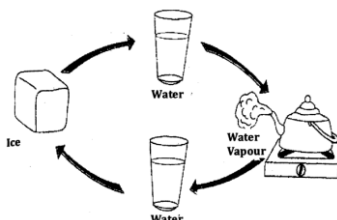
- (a) Physical change
(b) Chemical change
(c) Periodic change
(d) Non-periodic change

27. The change described above is a

- (a) reversible change
(b) irreversible change
(c) expansion
(d) contraction

28. The change of copper to patina as described above is a

- (a) fast change
- (b) slow change
- (c) exothermic change
- (d) endothermic change



29. What is the term used to describe the phase change of a liquid to a gas?
- (a) Boiling
 - (b) Condensation
 - (c) Melting
 - (d) None of the above
30. What term is used to describe the phase change of a solid to a liquid?
- (a) Freezing
 - (b) Melting
 - (c) Boiling
 - (d) None of the above
31. What is the term used to describe the phase change as a liquid becomes a solid?
- (a) Evaporation
 - (b) Condensation
 - (c) Freezing
 - (d) None of the above

Passage -3

32. Which of the following represents 'A'?
- (a) Solar eclipse
 - (b) Formation of rainbow
 - (c) Occurrence of season
 - (d) both (a) and (c)
33. Which of the following represents 'D'?
- (a) Making tea
 - (b) Burning of sulphur
 - (c) Dissolving salt in water
 - (d) Burning of coal
34. Which of the following represent 'C'?
- (a) Solar eclipse
 - (b) Raining
 - (c) Formation of rainbow
 - (d) Growth of a plant

Passage - 4

Mohan was boiling water in a pan for making tea. His brother Ram came there and observed that during boiling of water some bubbles are formed. He told his brother Mohan that boiling of water is a chemical change as gas is evolved in this process. But Mohan argued that this is not a chemical change.

35. Do you agree with Mohan? What kind of change is this?
- (a) Yes, physical change
 - (b) No, chemical change
 - (c) No, irreversible change
 - (d) No, Periodic change
36. According to you what is the gas that is observed by Ram?
- (a) Oxygen
 - (b) Water vapours
 - (c) Carbon dioxide
 - (b) No gas is formed
37. What kind of change takes place after formation of tea?
- (a) Physical change
 - (b) Chemical change
 - (c) Reversible change
 - (d) Both (a) and (c)

Passage -5

Ravi and Tina were working on a project based on 'changes around us', for which they were observing different changes occurring in their daily life. They went to kitchen where they saw their mother was cooking food on LPG stove. Ravi said that burning of LPG in LPG stove involves chemical change. But Tina argued that both physical and chemical changes are involved in this process.

38. According to you what is the physical change involved as mentioned by Tina?
- (a) Burning of LPG gas
 - (b) Conversion of liquid form of LPG into gaseous form.
 - (c) Cooking of food
 - (d) There is no physical change
39. Burning of LPG gas is which kind of change?
- (a) Chemical change
 - (b) Physical change
 - (c) Periodic change
 - (d) Reversible change
40. Which one of the following examples involves both chemical and physical changes?
- (a) Cutting of wood
 - (b) Melting of ice
 - (c) Burning of a candle
 - (d) Burning of paper

Assertion/ Reason Based Questions

DIRECTIONS: The questions in this segment consist of two statements, one labelled as Assertion 'A' and the other labelled as 'Reason R'. You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below

- (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.

- 41. Assertion (A):** Respiration is an exothermic process.
Reason (R): In an exothermic process heat is evolved.
- 42. Assertion (A):** The change of water from liquid to steam on heating is a physical change.
Reason (R): Conversion of liquid into steam is called evaporation.
- 43. Assertion (A):** Explosion of a bomb is an exothermic change.
Reason (R): Large amount of heat energy is released during explosion of bomb.
- 44. Assertion (A):** Small gap is left between the rails of a railway track.
Reason (R): Cooling of substances result in contraction.

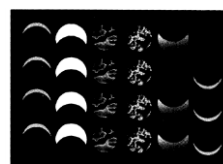
DIRECTIOS: Read the following three statements carefully and choose the correct option.

- (a) Statements (i) and (iii) are in correct but (ii) is correct.
 (b) Statements (i) and (ii) are in correct but (iii) is correct.
 (c) All three statements are correct.
 (d) All three statements are in correct.

- 45.** (i) A physical change is one in which the substance undergoing change is not destroyed and no new substance is formed.
 (ii) Glowing of an electric bulb is a physical change.
 (iii) When antacid tablet is dropped in water, it fizzes. This is a chemical change.
- 46.** (i) Turning off of a bulb is a irreversible change
 (ii) When the leaves of the touch-me-not plant is touched, they close. This is an reversible change.
 (iii) Ripening of fruits is a reversible change as we can get unripened fruit from ripened one.

Figure Based Question

- 47.** Carefully observe the figures A and B below and choose the correct option.
 (a).

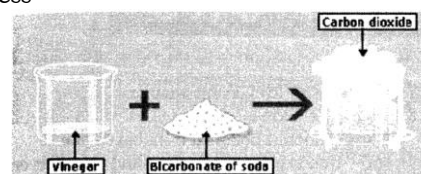


(b)



- (a) Both 'A' and 'B' are periodic changes
 (b) Both 'A' and 'B' are non-periodic change
 (c) 'A' is periodic and 'B' is non-periodic change
 (d) 'B' is periodic and 'A' is non-periodic change

- 48.** The picture given below represents a chemical process

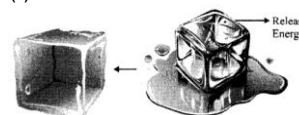


On the basis of given figure choose the correct option.

- (a) Reactant → Bicarbonate of soda, Product → Vinegar
 (b) Reactant → Vinegar, Product → Carbon dioxide
 (c) Reactant → Vinegar, Product → Bicarbonate of soda and carbon dioxide
 (d) Reactant → Vinegar, Bicarbonate of soda, product → Carbon dioxide

- 49.** Look at the following figures and choose the correct option.

(i)



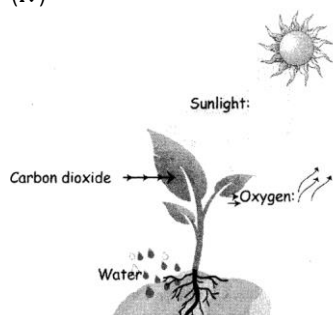
(ii)



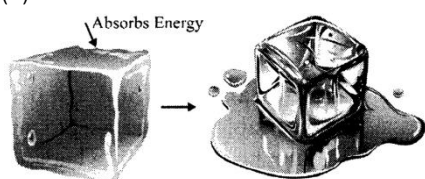
(iii)



(iv)



(v)



- (a) (i), (ii) and (iii) represent exothermic change
(b) (ii), (iv) and (v) represent endothermic change
(c) (i), (iii) and (v) represent exothermic change
(d) only (ii) and (iv) represent endothermic change

Hints & Solutions

1-Exercise

Multiple Choice Questions

1. (b) The rubber band can be stretched again by applying force. It is a reversible change.
2. (d) In both types of changes (i.e. reversible change and physical change) we can get back the original substance by reversing the conditions.
3. (d)
4. (d) During burning of candle carbon dioxide gas and water vapours are formed therefore it is a chemical change. Also burning of candle result in melting of wax is a physical change.
5. (a) It is a physical change. Yam can be obtained back from sweater.
6. (b) The change of milk to curd takes a long time so it can be classified as a slow change.
7. (c) In both evaporation and melting heat is absorbed so both of them are endothermic changes.
8. (c) The change of bud to flower is an irreversible change as blooming flower cannot be changed into buds.
9. (d) All these changes are periodic as they occur after regular intervals of time.
10. (c) A chemical change is accompanied by the formation of new substance and general lyoccurs with the evolution/absorption of energy
11. (a) We call it a physical change because of change of physical properties in it.
12. (a) In it rust that is formed is a new substance (i.e. different from iron, the original substance) so it is a chemical change.
13. (d) Molten ice cream when cooled gives ice-cream again.
14. (c) Low and high tides appear periodically, soit is a periodic change.
15. (c) Both occurrence of tides and opening of a morning glory flower are periodic changes.
16. (a) It is a physical change because we can get back the ball of dough from a rolled out roti.
17. (c) It is an irreversible change.
18. (b) It is permanent change as rolled out roti can not be obtained from baked one.
19. (a) Iron expands on heating and contracts on cooling. This is a physical change.
20. (a) It is a reversible change. The melted wax again gives solid wax on cooling.
21. It is a reversible change as we can get back salt from its solution by evaporating off water.
22. (c) Dissolution of oxygen in water is not a chemical change as no new substance is formed in it.
[In case of dissolution of ammonia in water ammonium hydroxide is formed. In case of dissolution of carbon dioxide in water anew substance, carbonic acid, is formed]
23. (a) Melting of ice candy is reversible because we can get back ice-candy from melted ice candy.

24. (d) It is an irreversible change and also a permanent change.
25. (d)
26. (b)
27. (b) Burning is a chemical change while melting, condensing and evaporation are physical change.
28. (b)
29. (b) Wood undergoes a physical change in making furniture, while the chemical structure changes when you burn wood.
30. (b)
31. (d)
32. (d) The change of liquid to gaseous state on heating is evaporation.
33. (b)
34. (a) Exothermic change is accompanied by release of energy in the form of heat and light.
35. Metals expand on heating
36. (b)
37. (c) Photosynthesis is a chemical change.
38. (a) A new substance is formed in a chemical change.
39. (b)
40. (c)
41. (c)
42. (c) Burning is a chemical change while all other are physical changes.
43. (c) Artificial ripening is an irreversible change as this process cannot be reversed.
44. (b) Burning of a piece of paper is a chemical change.

45. (c) Forest fire is non-periodic change while all other are periodic changes.
46. (c) Formation of ash from paper is a chemical change while all other are physical changes.
47. (a) Cooking, as cooked food is different in composition than uncooked food.
48. (b) Physical changes are usually a change in state of matter. For example, Evaporation is a physical change in which liquid changes into gaseous form.

Match the Column

49. (c) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$
50. (b) $A \rightarrow (s), B \rightarrow (r), C \rightarrow (p), D \rightarrow (q)$
51. (a) $A \rightarrow (q), B \rightarrow (s), C \rightarrow (p), D \rightarrow (r)$

Passage Based Questions

Passage -1

52. (b) It is a chemical change because a new substance has been formed.
53. (a) It is a slow change. The change occurs in few hours.
54. (b) Chemical changes are generally irreversible as we cannot get back the starting substances from new product formed.

Passage-2

55. (c) On boiling tea, steam is formed. So, due to pressure of steam the cover of tea kettle flew away.
56. (a)
57. (b)

Assertion/Reason Based Questions

58. (d) In it Assertion is false because the explosion of fire cracker is a chemical change. When a fire cracker explodes, new chemical substances are formed. Reason is true.
59. (b)

60. (d) Burning of paper is a chemical change.
61. (b) Since the properties of rust are different from the iron therefore rusting is a chemical change.

Statement Based Questions

62. (c)
63. (d)

Figure Based Questions

64. (b) Both the changes explosion and burning as shown in figures are chemical change, (i.e., new substances are formed)
65. (b) Both are reversible. We can get back paper sheet from the ship shaped toy of paper and the lightening bulb can also be changed to its original position by switching off the current.
66. (b) Given picture shows reversible change as melted wax can be solidified again.
67. (a) Freezing of water into ice is an exothermic and reversible change.
68. (c) Explosion of a bomb is chemical and exothermic change.

EXERCISE-2

1. (b) Since new substance (i.e. magnesium oxide) is formed when magnesium is burnt in air so it is a chemical change. Since heat is produced so it is an exothermic change.
2. (b) It is a permanent change as we cannot get back POP once it is dried.
3. (b) The given changes can be classified either as physical change or a chemical change.
4. (a)
5. (d) Since the change is accompanied by change in colour, temperature and energy. It is a chemical change
6. (d)
7. (d)

8. (a)
9. (c) Both digestion of animal waste by anaerobic bacteria and formation of biogas are chemical changes as new product is formed in both the changes.
10. (c)
11. (b)
12. Photo synthesis is an endothermic process while respiration, digestion and freezing are exothermic processes.
13. (d) Water vapours and carbon dioxide are formed as new products during burning of a candle. Melted wax is also formed but that is not a new material.
14. (c) Heat energy is released when water freezes to ice and when water vapour condenses into liquid water. While in melting of ice and evaporation of water heat is absorbed.
15. (a) Yes, This is a physical change as clay can be converted into different shapes and this does not result in change in its composition.
16. (a) Peeling of banana is a physical change. As we just separated skin of banana. Composition of banana remains the same.
17. (c) Chalk powder has same molecules as chalk and no new product is formed on breaking chalk into chalk powder.
18. (d) Cutting of wood is a physical change while all other are chemical change. All results in formation of a new product.
19. (b) Charcoal burning is a chemical change.
20. (c) In a chemical process original substance is called reactant. Here paper is a reactant.
21. (b) Permanent change, change in composition and formation of new substance all these are characteristics of a chemical changes while reversibility is not a characteristic of chemical changes.
22. (b) This is due to contraction when outer surface of glass comes in direct contact with cold water it

contracts more compared to the inner surface of the glass that is not indirect contact with cold water.

Match the Column

23. (d) $A \rightarrow (r), B \rightarrow (p), C \rightarrow (q), D \rightarrow (s)$

24. (b) $A \rightarrow (q), B \rightarrow (s), C \rightarrow (p), D \rightarrow (r)$

25. (b) $A \rightarrow (r), B \rightarrow (s), C \rightarrow (q), D \rightarrow (p)$

Passage Based Questions

Passage -1

26. (b) It is a chemical change because in it a new substance is formed.

27. (b) It is a chemical change so it is irreversible change.

28. (b) It is a slow change.

Passage -2

29. (a)

30. (b) Melting involve phase change of solid to liquid.

31. Conversion of liquid to solid for example water to ice is called freezing

Passage -3

32. (d) Occurrence of season is a physical and periodic change. As seasons repeat themselves every year.

33. (c) It is a physical change and salt can be obtained from salt water solution by evaporation and hence it is a reversible change

34. (a) Solar eclipse is a physical change that is periodic as well as reversible.

Passage -4

35. (a) Yes, Mohan is correct. Boiling of water is a physical change. This is because in boiling of water molecules of water remains the same as liquid water changes into water vapour and no new product is formed.

36. (b) During boiling of water, water vapours are formed.

37. (b) Formation of tea is chemical change as this results in formation of new product that has different molecules than initial substance i.e., water.

Passage -5

38. (b) When no b of stove is opened liquid form of LPG gets converted into gaseous form that is used for cooking food.

39. (a) Burning of LPG gas is a chemical change.

40. (c) During burning of a candle melting of wax takes place that is a physical change. But it also results in formation of water vapours and carbon dioxide which is a chemical change.

41. Both Assertion and Reason are correct but Reason is not the correct explanation of Assertion.

42. (b)

43. (a) Both assertion and reason are true and reason is the correct explanation of assertion.

44. (b) Small gap is left between the rails of a railway track because there is expansion of the rails in hot weather.

Statement Based Questions

45. (c) When antacid tablet is dropped in water, it fizzes and form carbon dioxide gas which is a chemical change.

46. (a) Statement (i) and (ii) are a reversible changes while statement (iii) is an example of irreversible change.

Figure Based Questions

47. (b) Both change in phases of moon and movement of needle of clock are periodic changes.

48. (d) In this process reactants are vinegar and bicarbonate of soda which on reaction gives product carbon dioxide

49. (b) Cooking food (ii), photosynthesis (iv) and melting of ice represents endothermic change.