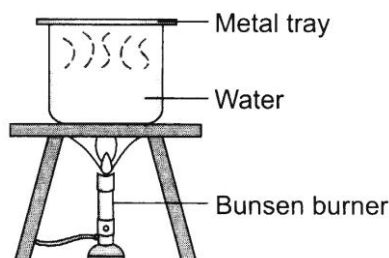


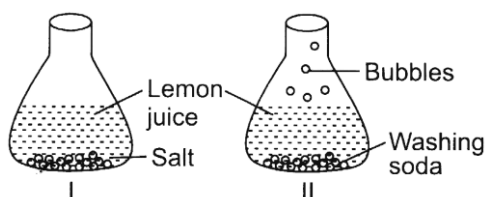
## Changes Around Us

1. Raveena covered a beaker of boiled water with a metal tray as shown in the diagram.

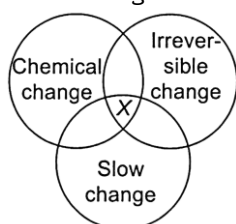


The beaker and metal tray were then removed from the tripod stand and left on the table. After two minutes, which of the following can be observed?

- (a) Water droplets are seen on the outer part of metal tray.  
 (b) Water droplets are seen on the inner part of tray and inner part of the beaker.  
 (c) Water droplets are seen on the inner part of metal tray and outer part of the beaker.  
 (d) Water droplets are seen on the outer part of beaker only.
2. Sudha took lemon juice in two flasks. She put salt in flask I and washing soda in flask II. She observed lots of bubbles in flask II but nothing in flask I. What could be the reason for this?

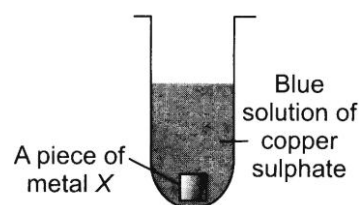


- (a) In flask I, a chemical change takes place.  
 (b) In flask II, a chemical change takes place and bubbles of carbon dioxide are seen.  
 (c) In flask II, a physical change takes place producing lots of bubbles.  
 (d) In flask I, salt reacts with lemon juice and forms a new compound.
3. Study the given Venn diagram carefully.



The centre point X represents

- (a) Burning of paper  
 (b) Dissolving salt in water  
 (c) Boiling of an egg  
 (d) Bursting of a balloon.
4. A metallic piece (X) is dropped into copper sulphate solution. After some time, the blue colour of the solution changes to green. The change which has occurred is



- (a) Physical and reversible change  
 (b) Physical and irreversible change  
 (c) Chemical and reversible change  
 (d) Chemical and irreversible change.
5. Read the given passage and fill in the blanks by choosing an appropriate option.  
 Iron nails when new are grey and bright. When exposed to (i), they get covered with a (ii) coating. This process is called (iii) and it is a (iv) change.

	(i)	(ii)	(iii)	(iv)
(a)	Moist air	Grey	Corrosion	Chemical, reversible
(b)	Air and water	Reddish brown	Rusting	Chemical, irreversible
(c)	Oxygen in air	Green	Rancidity	Physical, irreversible
(d)	Nitrogen in air	Reddish brown	Galvanisation	Chemical, irreversible

6. Mark the incorrect statement.  
 (a) Melting of wax is a physical change while burning of wax in a candle is a chemical change.  
 (b) Metals expand on heating while contract on cooling. Both are physical changes.  
 (c) Composition of matter changes during a chemical change while it remains same during a physical change.  
 (d) High and low tides in sea are the examples of non-periodic changes while growth of a tree is a periodic change.
7. Few changes are given below. Mark the correct option from the codes given below.

- (i) Milk is set to form curd.
- (ii) Batter is steamed to form idlis.
- (iii) Water is boiled to form steam.
- (iv) Salt is dissolved in water to form solution.

(i)	(ii)	(iii)	(iv)
(a) Physical	Physical	Chemical	Chemical
(b) Physical	Chemical	Physical	Chemical
(c) Chemical	Chemical	Physical	Physical
(d) Physical	Chemical	Chemical	Physical

8. Nitu mixed some iron filings with sulphur powder in a China dish. She heated the contents of China dish. What did she observe during the experiment?

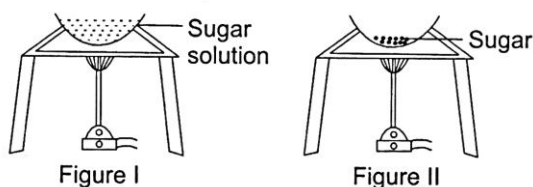
- (a) There was no difference in the contents of China dish before and after heating.
- (b) Before heating, iron filings and sulphur powder could be seen separately but after heating the content became black.
- (c) Before heating, the iron filings and sulphur powder could not be seen separately.
- (d) Before heating, the contents were black and after heating, iron filings and sulphur could be seen separately.

9. What is common among the following phenomena?

1. Blinking of traffic lights.
2. Rotation of blades of a fan.
3. Swinging of pendulum of a clock.

- (a) All are chemical changes.
- (b) All are periodic changes.
- (c) All are undesirable changes.
- (d) All are irreversible changes.

10. Observe the two figures given below. In figure I, a solution of sugar in water is heated and in figure II, only sugar is being heated. What is the correct sequence of changes taking place?



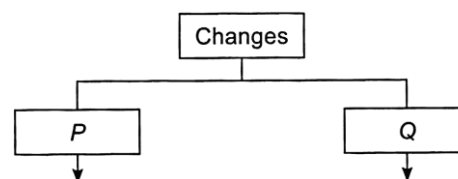
- (a) In figure I, physical change is taking place while in figure II a chemical change is taking place.
- (b) In figure I, a chemical change is taking place while in figure II a physical change is taking place.

- (c) In both figures, physical changes are taking place.
- (d) In both figures, chemical changes are taking place.

11. Rohan tore a sheet of paper into pieces and then burnt them. Identify the irreversible change taking place in the process.

- (a) Tearing the sheet into pieces.
- (b) Burning the pieces
- (c) Both tearing and burning the pieces
- (d) None of these.

12. Study the flowchart carefully.



- (i) Melting of ice
- (ii) Blowing of balloon
- (i) Cutting of paper
- (ii) Flowering of bud

Which of the following is correct?

P	Q
(a) Reversible change	Reversible change
(b) Irreversible change	Reversible change
(c) Irreversible change	Irreversible change
(d) Reversible change	Irreversible change

13. A potter shapes pots out of clay (Process 1). He then bakes the pots in an oven (Process 2). Which of the following statements is correct?

- (a) Process 1 is a reversible, physical change while process 2 is an irreversible, physical change.
- (b) Process 1 is an irreversible, physical change while process 2 is an irreversible, chemical change.
- (c) Process 1 is a reversible, physical change while process 2 is an irreversible, chemical change.
- (d) None of these.

14. Match the column I with column II and choose the correct option from the codes given below:

Column I	Column II
P. Digestion of food in our body	(i) Fast change
Q. Earthquake	(ii) Natural, desirable change
R. Falling of stone	(iii) Natural, undesirable change
S. Change of seasons	(iv) Slow change

- (a) P - (iv), Q - (ii), R - (iii), S - (i)  
 (b) P - (iii), Q - (iv), R - (ii), S - (i)  
 (c) P - (ii), Q - (i), R - (iv), S - (iii)  
 (d) P - (iv), Q - (iii), R - (i), S - (ii)

15. Consider the following phenomena :

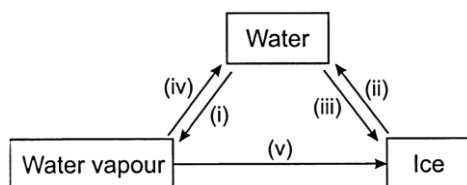
- (i) Forest fire  
 (ii) Growth of plants  
 (iii) Low and high tides  
 (iv) Occurrence of a rainbow  
 (v) Earthquakes  
 (vi) Opening of a morning glory flower.

Which of the above phenomena can be classified as periodic changes?

- (a) (i), (ii) and (iii) (b) (i), (ii) and (v)  
 (c) (iv), (v) and (vi) (d) (iii) and (vi)

### Achievers Section (HOTS)

16. Observe the given figure carefully and choose the correct statement.



- (a) Processes (iii) and (iv) involve absorption of heat energy.  
 (b) Process (v) involves condensation and freezing.  
 (c) Processes (i) and (iii) evolve heat energy.  
 (d) Process (v) absorbs a lot of heat energy.

17. Swati classified a few changes occurring around us as shown in the table.

No.	Changes	Type
1.	Sharpening of pencil	Physical, reversible
2.	Evaporation of water	Physical, irreversible
3.	Opening of a bud	Chemical, irreversible
4.	Rusting of iron	Chemical, reversible

Which of the changes is/are classified correctly?

- (a) 2 and 3 only (b) 3 and 4 only  
 (c) 1 and 4 only (d) 3 only

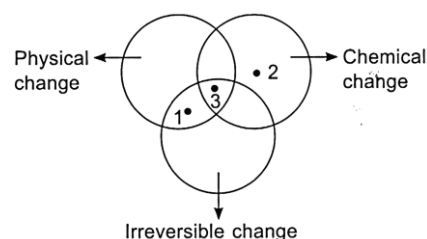
18. Read the given statements and mark the correct option.

**Statement 1:** While fixing a metal rim on a wooden wheel of a cart, the size of the metal rim is kept slightly smaller than that of the wooden wheel.

**Statement 2:** Metals expand on heating and contract on cooling.

- (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.  
 (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.  
 (c) Statement 1 is true and statement 2 is false.  
 (d) Both statements 1 and 2 are false.

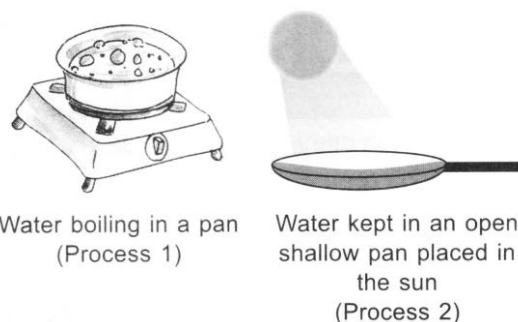
19. Study the given Venn diagram.



Identify points 1, 2 and 3.

	1	2	3
(a)	Melting of ice	Boiling of rice	Burning of a candle
(b)	Burning of paper	Rusting of iron	Cutting of fruits
(c)	Breaking of a glass	Baking a cake	Burning of LPG in kitchen
(d)	Tearing of paper	Evaporation of water	Making lemonade

20. Observe the given processes 1 and 2 carefully.



Which of the following statements are correct?

- I.** Bubbles are formed in process 1 while no bubble formation takes place in process 2.
- II.** Process 1 is slow while process 2 is fast.
- III.** Process 1 occurs at  $100^{\circ}\text{C}$  only while process 2 can occur at any temperature.

- (a) I and II only  
(c) I and III only

- (b) II and III only  
(d) All of these.

## Answer key

<b>1.</b> B	<b>2.</b> B	<b>3.</b> C	<b>4.</b> D	<b>5.</b> B
<b>6.</b> D	<b>7.</b> C	<b>8.</b> B	<b>9.</b> B	<b>10.</b> A
<b>11.</b> C	<b>12.</b> D	<b>13.</b> C	<b>14.</b> D	<b>15.</b> D
<b>16.</b> B	<b>17.</b> D	<b>18.</b> A	<b>19.</b> C	<b>20.</b> C

## HINTS & EXPLANATIONS

1. (b): When the water vapours strike the cooler walls of container, they condense and form water droplets on the inner surfaces of metal tray and the beaker. This process is called condensation.
2. (b): Lemon juice (acid) reacts with washing soda (base) and liberates carbon dioxide gas i.e., a new substance is formed. Thus, it is a chemical change. Whereas, addition of salt in lemon juice is a physical change as only salt gets dissolved in lemon juice, no chemical reaction takes place,
3. (c): Boiling of an egg is a chemical, irreversible and slow change.
4. (d): Metal (X), iron reacts with blue coloured solution of copper sulphate and forms a "new substance (green coloured solution of iron sulphate) and cannot be converted back to the original solution. Thus, it is an irreversible and chemical change.
5. (b) Not Available
6. (d): Changes which occur again and again after fixed intervals of time are known as periodic changes. For example, change of day and night, occurrence of full moon, beating of heart, oscillation of pendulum of clock, high and low tides in sea, etc.  
Changes which do not repeat themselves at regular intervals are called non-periodic changes. You cannot predict when will they reoccur. For example, occurrence of earthquake, accidents, sneezing, rusting of iron, growing of a tree, etc.
7. (c): A change in which a substance undergoes a change in its physical properties is called a physical change. It is generally reversible and in such a change, no new substance is formed. For example, boiling of water, dissolving of salt in water, melting an ice cube. A change in which one or more new substances are formed by means of a chemical reaction is called a chemical change. It is generally irreversible. For example, setting of milk into curd, making idlis, rusting of iron, cooking of food, etc.
8. (b): On heating, iron reacts with sulphur to form black solid of iron sulphide. This is an irreversible, chemical change.
9. (b): All these changes occur again and again after fixed intervals of time, hence are periodic changes.
10. (a): In figure I, evaporation of water from sugar solution is a physical change because there is only change in state of matter from liquid (sugar solution) to solid state (crystals of sugar). In figure II, when sugar is heated, it turns black due to the formation of a new substance and it cannot be reversed. Therefore, it is a chemical change.
11. (c) Not Available
12. (d): The water formed after melting of ice can be frozen again to form ice. If the air inside the blown balloon is allowed to escape, then the balloon regains its original shape. So, both these changes are reversible changes. While changes like cutting of paper and flowering of bud cannot be reversed and hence, are irreversible.
13. (c) Not Available
14. (d): Digestion of food in our body - Slow change  
Earthquake - Natural, undesirable change  
Falling of stone - Fast change  
Change of seasons - Natural, desirable change
15. (d): Periodic changes are the changes which keep repeating themselves after a regular period of time. So, low and high tides and opening of a morning glory flower are the examples of periodic changes.
16. (b): Processes (i) and (ii) involve absorption of heat while processes, (iii), (iv) and (v) involve evolution of heat.
17. (d): Opening of a bud is a chemical and irreversible process.
18. (a): While fixing the metal rim, it is heated. It becomes slightly larger in size and can be fixed into the wooden wheel. On cooling, it contracts and fits tightly on to the wheel.
19. (c) Not Available
20. (c): Process 1 is boiling which is a fast process while process 2 is evaporation which is a slow process.