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ANSWER

Subject – Physical Science

Class - VIII

F.M.-80

SECTION -A

1. Choose the correct answer. : (1 x 5 = 5)

1. The fixed temperature at which a liquid changes into a solid is known as

- | | |
|------------------|-------------------|
| a) boiling point | b) freezing point |
| c) vapourisation | d) condensation |

Ans : Freezing Point

2. Relative density is also known as –

- | | |
|---------------------|------------------------|
| a) specific gravity | b) convection currents |
| c) density | d) sublimation |

Ans. : Specific gravity

3. The intermolecular force is the strongest in –

- | | |
|--------------------------|----------|
| a) liquid | b) gases |
| c) both liquid and gases | d) solid |

Ans : Solid

4. Curdling of milk one-

- | | |
|----------------------|------------------------|
| a) Reversible Change | b) Irreversible Change |
| c) both (a) & (b) | d) none of them. |

Ans. : Irreversible Charge

5. Red brown solid formed on iron due to presence of moisture is –

- | | |
|------------------|--------------|
| a) Carbohydrates | b) Digestion |
| c) Rust | d) Burning |

Ans : Rust

II. Fill in the blanks :- (1X10=5)

1. **Non Periodic** changes are those which do not take place at fixed intervals of time.

2. The process in which a gas directly condenses into a solid state is called

Deposition /Condensation

3. The changes that are useful to us are called **Desirable** changes.
4. The density of water is **1000** Kg/m³.
5. A reference mark on the hull of the ship is called **Pilmsoll line**.
6. The boiling point of pure ice is **100⁰C**
7. Change of State occurs when **heat** is either absorbed or released.
8. When burnt, CNG forms carbon dioxide and **Water vapour**.
9. Photosynthesis is **a Chemical Change**

SECTION – B

III. Short type question answer .

(2x5)

1. How does density of liquid vary with temperature ?

Ans. In case of liquids there is a large increase in volume with increase in temp, they expand on heating. So density of liquid decreases when they are heated and increases when they are cooled.

2. What happens if relative density of a substance is less than 1 ?

Ans. : If relative density of a substance is less than 1, it is less dense than water and will float on water.

3. Why Iodine naphthalene is different from any other solids ?

Ans. : Iodine Naphthalene are sublimates particles as they get converted from solid to gaseous Liquid state and when cools down comes to solid state again. This called sublimation.

4. Write the value of melting point of ice and freezing point of water ?

Ans. : Melting point of ice and freezing point of water is 0⁰C.

5. Where are electrons placed in an atom ? Are they stationary ?

Ans : Electrons are placed in the outermost orbit of an atom. No. they are not stationary that are rather moving around the nucleus in an atom.

IV. Answer the following (any 5)

(3x5)

1. State 3 differences between physical and chemical changes ?

Physical Change

Chemical Change

- i) A physical change is temporary
- ii) It is reversible
- iii) No new substances are formed.
- iv) After a physical change, the mass

- a) A chemical change is permanent.
- b) It is irreversible
- C) New substances are formed.
- d) Mass of the individual substance

of the substances remains unaltered.

Undergo a chemical change is altered.

2. Why it is easier to swim in sea water than in freshwater? What do you mean by relative density of a substance.

Ans. : Relative density of a substance is defined as the ratio of the density of the substance to the density of water at 4°C .

$$\text{Relative density} = \frac{\text{Density of a substance}}{\text{density of water at } 4^{\circ}\text{C}}$$

It has no unit

3. Define atomic and mass number of an atom? Give two examples.

Ans. : Mass number – The sum of the numbers of protons and neutrons in an atom is known as the mass number of the atom.

Example : i) hydrogen : H

The number of electrons = $Z=1$

The number of protons = $Z=1$

The number of neutrons = $A-Z$
 $= 1-1=0$

: Mass number of hydrogen = $1+0=1$

ii) Carbon (${}^{12}_6\text{C}$)

Number of Electrons = $Z = 6$

Number of Protons = $Z = 6$

Number of Neutrons = $A - Z = 12-6 = 6$

Mass number = $6+6=12$

4. What do you understand by evaporation? How is it different from that of boiling?

Ans. : Evaporation –

The slow and gradual conversion of liquid to its gaseous state at any temperature is called evaporation.

Ans : **Boiling**

1) Process in which a liquid rapidly

Evaporation

i) Slow and gradual conversion of a liquid to its gaseous state at any temperature.

2) It's a fast process

ii) It Slow Process.

5. Explain convection currents. Give 2 exs. Of natural convection currents.

Ans : Circular movements or currents within a fluid due to different densities of hotter and cooler part

Exm. : 1) The blowing of wind

2) Land breeze and sea breeze

3) Boiling of water in a kettle.

6. Difference between - Force of cohesion and adhesion.

Ans. : **Force of Cohesion :-**

1) Molecules of similar kind exert a force called force of cohesion.

2) It is maximum in solids, lesser in liquids, least in gases.

3) Ex. Force of attraction between molecules of a block of wood.

Force of Adhesion :

1) Molecules of different types exert a force called force of adhesion.

2) It depends on nature of molecules.

3) Eg force of attraction between molecules of water and bottle in which it is placed.

7. Explain how the volume of the material gets affected on increasing the temperatures.

Ans. In case of solids the change in volume with change in temperature is very small. So the density of solids does not change much with change in temperature.

In case of liquids and gases there is a large increase in volume with increase in temperature that is they expand on heating and vice versa. So, the density of liquids and gases decreases when they are heated and increases when they are cooled.

SECTION – C

V. Long answer question : (any 8)

5x8

1. Discuss on example to show that physical and chemical changes can occur together.

Ans. : Example : The mass under the which melts a candle burns the molten wax flows down and solidifies. These are changes in state and so physical changes.

A part of the molten wax that vaporizes burn to form carbon dioxide and water vapour the burning of wax is a chemical change.

2. Explain the kinetic theory of matter.

Ans : Kinetic Theory of Matter :-

- a) Matter is made up to tiny particles called molecules.
- b) The particles in a solid are rigidly held in positions about which they vibrate.
- c) the particles in liquid and gases are in constant motion.
- d) the collisions between the particles in a liquid are responsible for the formation of vapour.
- e) The collisions of the particles with the walls of the vessel are responsible for the pressure of a gas.
- f) The particles comprising matter possess kinetic energy (K.E)
- g) Kinetic energy of the particles increases with rising temperature and decreases when temperature is lowered.

3. How burning of fuels and fermentation are chemical changes ?

Ans. : Burning

Wood or paper when burnt. Combines with oxygen of the air and forms new substances CO_2 and water vapour on being cooled CO_2 and water vapour do not give back the wood or paper. Thus, burning of wood or paper is a chemical change.

For fermentation –

It is a process employed for preparing alcohol from fruits containing sugar. In presence of enzymes, a sugar solution changes into alcohol, liberating

carbondioxide. As a result a froth is formed called formantation. In thus a new substance is formed and so is irreversible.

4. Explain what happen duly curdling of milk ?

Ans. The curdling of milk –

Once milk is curdled –

* A new substance (Curd) is formed.

* Milk cannot be obtained back from the and ie. The change is irreversible.

Thus it is chemical change.

5. What observation did Ruthep make in his X-Pantcle & catteing experiment ?

How did he them deactie at the nuclaear model of the atorn ?

Ans : Rutherford's & particle scattering experiment =

Tutherford bombared a thin gold foil with & particles. Alpha particos are emitted by redioactine substances like radium.

His observation are –

1. Most of the X- Partides went straight through the foil this expanses that the atom is mostly empty.
2. Some of these particles deviated slightly from their path. This showed that they were repelled to a small extent by positive change.
3. Very few particles, the ones at the centre, almost retraced their path. This showed that they were strongly repelled by a small positively changed body called nucleus.
4. Electrons revolve round the nucleus at large distances from it

Diagram -

6. Describe an experiment which proves the lam of conservation of mass .

Ans : The mass of the individual substance undergoing a chemical charge is

altered. But the the mass of the reactants is the same as that of the products.

Eg. When carbon is burnt in air the mass of carbon is reduced and finally the carbon vanishesed get converted to carbon dioxide. The mass of the carbon used plus the mass of oxygen taken up from air is the same as that of the carbon dioxide formed.

Thus law of conservation of mass is obeyed.

7. Explain an activity to show that object with less density floats on water (with diagram)

Ans : To show that objects having less density float on water. Material Required – a glass beaker, Water, Cooking oil, Cork,

Procedure : Take some water in a glass beaker pour some cooking oil on the top now add cork in the beaker.

Observation : In the first step, we observed that both the liquids will form different layers in the beaker, cooking oil being less dense than water will float on it.

In the second step, we observed that the cork being less dense than oil will float on oil.

Conclusion : Objects having less density float on water and those having more density sink in water.

8. State Reason –

Ans. : Reason – Ice floats on water because the density of ice is less than the density of water. Thus, the density of huge mass of ice called iceberg is less than that of water and hence it floats on water.

a) Why iceberg floats on water.

Sodium (^{23}Na)

Number of electrons = $Z = 11$

Number of Protons = $Z = 11$

Number of neutrons = $A - Z = 23 - 11 = 12$

b) Why it is easier to swim in sea water than fresh water.

Ans : Oxygen ($^{16}_8\text{O}$)

Number of Electron = $Z = 8$

Number of Proton = $Z = 8$

Number of Neutron = $A - Z = 16 - 8 = 8$

9. Calculate the number of electrons, protons, neutrons along with diagram-

a) Sodium

b) Oxygen

10. Explain using diagram different properties of cathode ray using a discharge tube (any 5 properties).

Ans. : 5 property of cathode rays – (with diagrams)

1) They originate at the cathode and travel in straight lines.

When an object is placed in the path of cathode rays, a shadow of the object falls on the wall opposite the cathode. A shadow can be formed only when the rays travel in straight lines.

2) Cathode rays are a stream of particles:

A light paddle wheel, placed in the path of the cathode rays, rotates. This shows that some particles strike the plates of the wheel.

3) The particles constituting cathode rays are negatively charged

Cathode rays bend towards the positive plate in an electric field.

4) The particles constituting cathode rays are all alike. They do not change with the gas, the electrodes, kind of glass used.

5) The particles are a universal constituent of all atoms. These particles were named electrons.

6) Cathode rays get affected by magnetic field slowly that they possess electric as well as magnetic property.

7) X Rays are produced.