

SUBJECT: CHEMISTRY

CLASS: VIII

UNIT 1: MATTER

OBJECTIVE EVALUATION

A. CHOOSE THE CORRECT ANSWER:

1. Matter is anything that possesses

a. mass

c. gravitational force

b. intermolecular forces of attraction

d. all of these

2. Which of the following is not a state of matter?

a. Solid

c. Gas

b. Plasma

d. Boson

3. Every particle of matter possesses

a. kinetic energy

c. both a and b

b. potential energy

c. neither a nor b

4. Kinetic energy of matter is preserved in form of its

a. temperature

c. both a and b

b. pressure

c. neither a nor b

5. How does extraction of heat from matter affect the particles?

a. Increase in kinetic energy

c. Increase in intermolecular space

b. Increase in intermolecular attraction

c. Increase in potential energy

6. Phase change of matter occur at

a. constant pressure

b. constant temperature

c. constant volume

d. none of these

7. Conversion of liquid to gas is known as

a. condensation

b. sublimation

c. vapourisation

d. deposition

8. Boiling point of a substance is a

a. constant pressure

b. constant temperature

c. constant volume

d. all of these

9. Who proposed the Law of Conservation of Mass?

a. Einstein

b. Landolt

c. Lavoisier

d. Wieman

B. FILL IN THE BLANKS:

1. Atoms are the smallest particles of an element that can take part in a chemical reaction.

2. The mass of the reactants and that of the products are equal in a chemical reaction.

3. Combustion of paper results in formation of ash, water vapour and carbon dioxide.

4. A chemical reaction is not capable of creating or destroying mass.

5. Solution of silver nitrate and hydrochloric acid on mixing gives a white precipitate of silver chloride and soluble nitric acid.

6. The heat supplied or extracted for conversion of phase does not bring about any change in temperature and is called latent heat.

7. Water molecules on freezing arrange themselves in definite pattern which takes up more space.

C. WRITE TRUE OR FALSE:

1. Melting is an endothermic change. (**True**)

2. Condensation is an exothermic change. (**True**)
3. Vapourisation is an exothermic change. (**False**)
4. The molecules in a solid are perfectly motionless. (**False**)
5. Intermolecular attraction in gases is the highest among the three phases. (**False**)
6. Kinetic energy is the energy due to motion. (**True**)
7. In an endothermic change, there is contraction in the volume of matter. (**False**)
8. Potential energy is the stored energy of molecules. (**True**)
9. Melting point and freezing point of a substance are equal. (**True**)

D.MATCH THE FOLLOWING: (Direct answers)

1. Melting -- solid to liquid
2. Vapourisation -- Liquid to gas
3. Freezing -- Liquid to solid
4. Deposition -- Gas to solid
5. Condensation -- Gas to liquid
6. Sublimation -- Solid to gas

***SUBJECTIVE EVALUATION**

E.ANSWER THE FOLLOWING QUESTIONS:

Q1.*What is sublimation? Why do certain substances show this phenomenon? Give examples.*

Ans. The process of conversion of solid to gaseous state is known as sublimation. Certain substances show this phenomenon because they have weak forces of attraction holding the particles or molecules together. Eg: Dry ice, camphor.

Q2.*State the Law of Conservation of Mass. Who proposed it?*

Ans. The Law of Conservation of Mass states that, the mass of the reactants and the mass of the products in a chemical reaction are equal. It was proposed by a French scientist Antoine Lavoisier in 1789.

Q3. What kind of change is observed in the volume of matter on heating or cooling? Why is water exceptional?

Ans. On heating the matter movement of particles increases, this decreases intermolecular attraction which in turn increases intermolecular space. Thus, expansion takes place. On cooling, the reverse process takes place and the matter contracts. Water is exceptional because water molecules on losing heat are able to arrange themselves in definite pattern which takes up more space. Thus, ice expands when it freezes.

Q4. Why are solids not compressible?

Ans. Solids are not compressible because there is no intermolecular space for the particles to move.

Q5. What happens to a gas in a container when it is heated?

Ans. When a gas in a container is heated it cannot expand but there is only increase in pressure.

Q6. Explain in brief the postulates of the kinetic Theory.

Ans. Postulates of kinetic theory are:

- 1) All matter is made up of tiny particles called atoms that are joined to form molecules.
- 2) These particles are in constant motion due to which the particles possess kinetic energy.
- 3) Several kinds of forces of attraction exist between the molecules. These forces are called intermolecular forces of attraction.
- 4) Every particle has empty space between each other called intermolecular space.

Q7. What is kinetic theory of matter? Why is it important?

Ans. Kinetic theory of matter states that matter is made up of atoms and molecules that possess kinetic energy. Kinetic theory is useful in explaining the effects of thermal energy, temperature, pressure and transfer of heat through matter.

Q8. What is matter? What are its different phases?

Ans. Matter is a physical substance which possess mass and occupies space. There are three phases of matter: 1) Solid 2) liquid 3) Gas

Q9.Explain the following phenomenon in the light of kinetic theory:

Ans. a) MELTING: During melting the intermolecular space increases between the particles with a decrease in intermolecular forces of attraction so the kinetic energy increases.

b) FREEZING: During freezing the intermolecular space decreases between the particles with an increase in intermolecular forces of attraction so the kinetic energy decreases.

c) VAPOURISATION: During vapourisation the intermolecular space increases between the particles with a decrease in the intermolecular force of attraction so the kinetic energy increases.

d) CONDENSATION: During condensation the intermolecular space decreases between the particles with an increase in the intermolecular force of attraction so the kinetic energy decreases.

Q10.What is deposition? Give examples of this phenomenon found in nature.

Ans. The process of conversion of gaseous state directly into solid phase is known as deposition. It is a reverse process of sublimation. Frost formation is an example of deposition in nature.

Q11.Compare the three main phases of matter under the following heads:

Ans.

PROPERTIES	SOLID	LIQUID	GASES
a)Arrangement of particles	Closely packed	Loosely packed	Very loosely packed
b)Intermolecular attraction	Greatest	High	Least
c)Intermolecular space	Least space	Little more space compared to solids	Greater space
d)consistency	Rigid and have fixed shape	Can flow and take the shape of container	Can flow in all directions to completely fill the

			container
e)Motion	Vibrate about a fixed position	Slide around each other	Move quickly in any direction

Q12. *What are fluids? Why are they so called?*

Ans. Liquids and gases are known as fluids because the particles present in them can flow easily.

Q13. *Differentiate between vapourisation and evaporation.*

Ans.

VAPOURISATION	EVAPORATION
1) It occurs throughout the volume of liquid.	1) It occurs only at the surface of a liquid.
2) It requires external supply of heat.	2) It does not require external supply of heat.
3) It does not occur at all temperature and pressure.	3) It occurs at all temperature and pressure.

F.DEFINE THE FOLLOWING:

1) MELTING OR FUSION: It is the endothermic change of solid to liquid on application of heat at a constant temperature.

2) VAPOURISATION: It is the endothermic change of liquid to gas on application of heat at a constant temperature.

3) CONDENSATION: It is the exothermic change of gas to liquid by loss of heat at a constant temperature.

4) FREEZING: It is the exothermic change of liquid to solid by loss of heat at a constant temperature.

5) MELTING POINT: The temperature at which the solid phase changes to liquid is the melting point of that solid.

6) **FREEZING POINT**: The temperature at which the liquid changes to a solid is the freezing point of that liquid.

7) **VAPOURISATION POINT**: The temperature at which the change of liquid phase to gas takes place is the vapourisation point of the liquid.

8) **CONDENSATION POINT**: The temperature at which the change of gas phase to liquid phase takes place is called condensation point of the gas.

9) **LATENT HEAT OF FUSION**: The heat applied for conversion of solid to liquid is known as latent heat of fusion.

10) **LATENT HEAT OF VAPOURISATION**: The heat necessary for conversion of liquid to gas is known as latent heat of vapourisation.

11) **LATENT HEAT OF FREEZING**: The heat released by the liquid during its conversion into solid is known as latent heat of freezing.

12) **LATENT HEAT OF CONDENSATION**: The heat released by the gas during its conversion into liquid is known as latent heat of condensation.

13) **SUBLIMATION**: The process of conversion of solid to gaseous state is known as sublimation.

14) **DEPOSITION**: The process of conversion of gaseous phase directly into solid phase is known as deposition.

15) **EVAPORATION**: The process of conversion of liquid to gaseous state is known as evaporation.

G. THINK CRITICALLY AND EXPLAIN THE FOLLOWING: (GIVE REASON)

1) *Water stored in an earthen vessel remains cool.*

Ans. Water stored in an earthen vessel remains cool due to evaporation of water from the minute pores on its surface.

2) *We feel extra cold when snow starts melting.*

Ans. We feel extra cold when the snow starts melting because snow absorbs heat from the environment and the temperature of the environment decreases.

*** EXTRA GIVE REASON:**

3) *Why do we balance a chemical reaction?*

Ans. We balance a chemical reaction because according to Law of Conservation of Mass, the mass of the reactants is equal to the mass of the products.

4) *Liquids and gases are regarded as fluids.*

Ans. Liquids and gases are regarded as fluids because the particles present in them can flow easily.