CHAPTER-1
MATTER

SUB TOPIC- MEANING AND COMPOSITION

Level1: 1 MARK QUESTIONS (MCQ)

1. The intermolecular force is _____ in the particles of solid.
   i) Minimum
   ii) ii. moderate
   iii) iii. Maximum
   iv) iv. indefinite.
2. Solids retain their volume even when external pressure is applied. This property is called_____
   a. Plasticity
   b. incompressibility
   c. fluidity
   d. elasticity
3. Matter is classified into the types mixture, compound and element by applying the criterion_____
   a. states of matter
   b. phases of matters
   c. chemical composition of matter
   d. all of these
4. Matter that contains two or more constituent substances is called_____
   a.mixture
   b. compound
   c.element
   d. metalloid
5. Milk is an example of type of matter called _____
   a. solution
   b. homogeneous mixture
   c. heterogeneous mixture
   d. suspension
6. Water, mercury and bromine are similar to each other, because three are _____

a. liquids
b. compounds
c. nonmetals
d. elements.

7. Valency of carbon is 4 and that of oxygen is 2. From this, we understand that there are _____ chemical bond/bonds between the carbon atom and one oxygen atom in the compound-carbon dioxide.
   a. 1
   b. 2
   c. 3
   d. 4
8. The inter-molecular force is maximum in
   a. solids
   b. gases
   c. liquids
   d. none of the above
9. The inter-molecular space is maximum in
   a. liquids
   b. solids
   c. gases
   d. none of the above
10. The molecules can move freely anywhere in
    a. solids
    b. gases
    c. liquids
    d. none of the above
11. The molecules move only within the boundary of
    a. liquids
    b. solids
    c. gases
    d. none of the above

12. Name the particles which make up matter?
a. Non metals
b. Metals
c. Metalloids
d. Atoms

Level 2: SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. What consists of the smallest particles of an element? Explain with example
2. Define matter. State its composition.
3. Define:
   (a) Matter
   (b) An intermolecular force of attraction

4. Define the term matter. What is it composed of?

5. Which of the following are correct? Give reason
(a) Solids have definite shape and definite volume.
(b) Liquid have definite volume but do not have definite shape.
(c) Gases have definite volume but no definite shape.
(d) Liquids have definite shape and definite volume.
6. Elaborate the composition of matter

SUB TOPIC- Characteristics of particles of matter

Level 1: Mcq

The force that binds the particles of matter together is known as:
(a)Intermolecular space
(b)Bond
(c)Intermolecular force
(d)Nuclear force

When we put some crystals of potassium permanganate in a beaker containing water, we observe that after sometime whole water has turned pink. This is due to:
(a)Boiling
(b)Melting of potassium permanganate crystals
(c)Sublimation of crystals
(d)Diffusion

Level 2: SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. State two characteristics of matter demonstrated by Diffusion.
2. When crystal of potassium permanganate is placed in a beaker , purple color Spreads throughout the water. What does this observation tell us about the nature of Potassium permanganate and water?

3. Explain why, we can easily move our hand in air but to do the same through a plank Of wood, we need a karate expert.
4. Give one example of the diffusion of a solid in another solid.
5. State two characteristic properties each of:
   (a)A solid (b) a liquid (c) a gas
6. Give two reasons to justify that:
   a. Water is a liquid at room temperature.
   b. An iron almirah is a solid.
7. (a)What does the diffusion of gases tell us about their particles?
   (b)Give one example of diffusion of gases in a liquid.
8. Give reason for the following observation:
9. The smell of hot sizzling food reaches us even from a considerable distance but to Get the smell from cold food, we have to go close to it.
10. Explain why:

a. Air is used to inflate tyer.
b. Steel is used to make railway lines.

11. Explain why , diffusion occurs more quickly in a gas than in a liquid.

Level 3: SHORT ANSWER TYPE QUESTIONS (3 MARKS)

1 a. List the characteristics of particles of matter
b.What do you mean by intermolecular space?
2. How can you explain that particles of matter are always in random motion?
3. Give any one example and explain particles of matter attract each other.

SUB TOPIC- STATES OF MATTER, DISTINCTION BETWEEN SOLIDS, LIQUIDS AND GASES

Level 1: (One mark questions)

Fill in the blanks

1. From the three states of matter, _____ expand the least.
2. Brownian movement is maximum in _____ .
3. Cohesive forces are negligible in _____ .
4. Matter can change from one state to another by change in _____ .
5. The space between atoms (molecules) of solid is _____ .
6. Intermingling of molecules is called _____ .
7. Ice on absorption of heat converts to 'X' a process called _____. 'X' changes to water vapor on _____ . Water vapor changes back to 'X' on _____. The constant temperature at which ice changes into 'X' is called its _____.

State which of the following are physical properties of a substance:

1. Chlorine gas has a - strong irritating odour.
2. Sodium nitrate is soluble in water, but calcium carbonate is not.
3. Magnesium reacts with dilute hydrochloric acid, liberating hydrogen gas.
4. Manganese dioxide, a catalyst which alters the rate of a chemical reaction is black in colour.
5. The melting point of ice is 0°C
6. Lead chloride reacts with barium sulphate to give a white precipitate of lead sulphate.
7. Water acidified with dilute sulphuric acid is a good conductor of electricity.
8. Naphthalene on heating directly turns into vapour.
9. Hydrogen sulphide gas has a strong rotten egg odour.
10. Sulphur is a yellow amorphous powder insoluble in water.

Match the characteristics of the three states of matter in List I with their correct answer from List II:

List I	List II
1. Are highly rigid and have a definite shape	A : Solids and gases only
2. Have no definite shape	B : solids only
3. Have a definite volume but no definite shape	C : Liquids and gases only
4. Are highly compressible and least rigid	D : Gases only
5. Have no definite volume	E : Solids, liquids and gases
6. Have no definite shape and volume	F : Liquids only
7. Occupy space	G : Solids and liquids only
8. Are not compressible	
9. Are slightly compressible	
10. Have mass	

Match the arrangement of atoms in the three states of matter in List I with the correct state in List II

List I	List II
1. Arrangement of atoms is far apart	A : Solids
2. Force of attraction between atoms is very strong	B : liquids
3. Movement of atoms is in any random direction	C : Gases
4. Particles diffuse very easily	
5. Particles show movement about their own position	

State the correct answer from A, B, C, D, E or F in List II which represents the change of state of matter or its relevant property from List I

List I	List II
1. Solid 'X' to liquid 'Y'	A : Condensation
2. Liquid 'Y' to its vapour 'Z'	B : Vaporization
3. 'Z' to 'Y'	C : Melting
4. 'Y' to 'X'	D : Freezing
5. The temperature at which 'Y' changes to 'Z'	E : Melting point
	F : Boiling point

Level 2: short answer type questions (2 marks)

1. Explain the term 'matter'. One kind of matter can be distinguished from another by its physical properties and chemical properties. State the main physical properties of matter.

2. The three main states of matters are solids, liquids and gases. Compare the three states with reference to the following characteristics of matter -
(a) Volume
(b) Shape

3. The three main states of matters are solids, liquids and gases. Compare the three states with reference to the following characteristics of matter -
(a) Compressibility
(b) Diffusion

4. Describe simple experiments to prove that - solids Occupy space
5. Describe simple experiments to prove that - solids have mass
6. Describe simple experiments to prove that - solids have a definite volume
7. Describe simple experiments to prove that – liquids have mass
8. Describe simple experiments to prove that – liquids have a definite volume
9. Describe simple experiments to prove that – liquids have no definite shape
10. Describe simple experiments to prove that gases occupy space
11. Describe simple experiments to prove that gases have mass
12. Describe simple experiments to prove that gases have no definite volume or shape.

Level 3: short answer type questions (3 marks)

1. Matter in any state is composed of particles. Compare the three states of matter i.e. solids, liquids and gases with reference to:
(a) Intermolecular space
(b) Intermolecular force of attraction
(c) Movement of particles

SUB TOPIC- CHANGES IN STATE OF MATTER.

Level 2: short answer type questions (2 marks)

1. State what would you observe if
(a) Sugar is added to pebbles taken in a plastic beaker.
(b) Sand is added to glass balls in a beaker.
What would you conclude with this imaginative demonstration?

2. Complete the statements given below by selecting the correct word/s:
(a) Solids and liquids have a definite _____ but gases do not. (mass , shape, volume)
(b) The space between atoms in gases is maximum while in _____ is minimum. (solids , liquids, gases)
(c) Conversation of a vapour into a liquid is called _____ . (vaporization , condensation, freezing)
(d) _____ is an example of a crystalline substance. (wax , sugar, tea)

3. State which of the following statements are false. If false, write the correct statements.
(a) Solids are highly compressible and rigid.
(b) Atoms/molecules in gases move only about their own positions.
(c) The conversion of water to ice is called freezing.

Level 3: short answer type questions (3 marks)

1. Explain the term 'inter conversion of matter'. With reference to ice, water and water vapor show diagrammatically the change of state of matter from solid to liquid to gaseous and back to original state.
2. With the help of a simple diagram how would you show that - solids expand on heating.

Level 4: long answer type questions (5 marks)

1. Explain the terms:
(a) Melting
(b) Vaporization
(c) Condensation
(d) Freezing
(e) Melting point

2. Give reasons for the following:
(a) Solids have a definite shape and are highly rigid while gases have no definite shape and are least rigid.
(b) Sugar can be distinguished from talcum powder using water.
(c) Water on freezing turns into ice.
(d) A bottle of perfume on opening evolves an odour which can be sensed over a long distance.
(e) Wet clothes dry more quickly on a warm day than on a cold humid day.

Miscellaneous

Write true or false for each statement:

1. The temperature of a substance remains unaffected during its change of state.
2. Ice melts at hundred degrees Celsius.
3. Water at hundred degrees Celsius has more heat than steam at hundred degrees Celsius.
4. Evaporation of a liquid causes cooling.
5. Water evaporates at hundred degrees Celsius.
6. Boiling takes place at all temperatures.
7. Evaporation takes place over the entire mass of the liquid.
8. The process of gas converting directly into solid is called vaporization.
9. At Higher altitudes water boils at 100 degree Celsius.

10. The melting point of ice is zero degree Celsius

Fill in the blanks:

1. Evaporation takes place at _____temperatures.
2. _____ Process is just the reverse of melting.
3. _____ is a process that involves direct conversion of solid into its vapour on heating.
4. The temperature at which solid converts into liquid is called its _____.
5. (e) The smallest unit of matter that exists freely in nature is called _____.
6. (f) Molecules of a substance are always in a state of _____ and so they possess _____.
7. (g) Intermolecular space is maximum in _____ less in _____ and the least in _____.
8. (h) Intermolecular force of attraction is maximum in _____, less in _____ and the least _____.

Select the correct alternative:

2. The temperature at which a liquid gets converted into its vapour state is called its
   a) melting point
   b) boiling point
   c) dewpoint
   d) freezing point
3. Rapid conversion of water into steam is an example of
   a) evaporation
   b) freezing
   c) melting
   d) vapourization
4. Evaporation takes place from the
   a) surface of liquid
   b) throughout the liquid
   c) mid-portion of the liquid
   d) bottom of liquid
5. Boiling takes place from the
   a) the surface of the liquid
   b) throughout the liquid
   c) mid-portion of liquid
   d) none of the above

Q4) Match the columns:

(a) Molecules	(i) water boils
(b) 100°C	(ii) evaporation
(c) 0°C	(iii) changes from solid to gas
(d) At all temperatures	(iv) matter
(e) Camphor	(v) water freezes

2. What are the three states of matter? Define each of them with two examples.
3. Define inter conversion of states of matter. What are the two factors responsible for the change of states of matter?
4. State the main postulates of the kinetic theory of matter.
5. What happens to water if
(a) It is kept in a deep freezer
(b) It is heated
Explain the phenomenon of change of state of water.
6. (a) State the law of conversation of mass.
(b) What do you observe when barium chloride solution is mixed with a sodium sulphate solution?
7. Give reasons:
(a) A gas can fill the whole vessel in which it is enclosed.
(b) Solids cannot be compressed.
(c) Liquids can flow.
(d) When magnesium is burnt in air, there is an increase in mass after the reaction.
8. Give two examples for each of the following:
(a) The substances which sublime.
(b) The substances which do not change their state on heating.

SHORT QUESTIONS

1. State three properties of molecules of a matter.
2. What do you mean by the inter- molecular spaces? How do they vary in different states of matter?
3. What is meant by the intermolecular forces of attraction?
4. Which of the following are correct?

(a) Solids have definite shape and definite volume.

(b) Liquid have definite volume but do not have definite shape.
(c) Gases have definite volume but no definite shape.
(d) Liquids have definite shape and definite volume.

5. Discuss the three states of matter solid,liquids and gas on the basis of molecular model.
6. What do you mean by the change of state? Write the flowchart showing the complete cycle of change of state.
7. Differentiate between melting point and boiling point, giving at least one example of each.
8. Describe the process of condensation and sublimation with examples.
9. Explain the term melting and melting point.
10. Describe an experiment to demonstrate that a substance absorbs heat during melting without change in its temperature.
11. Explain the terms vaporization and boiling point.
12. A liquid can change into vapours state
    (a) At a fixed temperature, and
    (b) At all temperatures
13. Name the process involved in two cases.
14. Some ice is taken in temperature is recorded after each one minute. The observations are listed below:

Time (in minute)	Temperature (in °C)
0	0
1	0
2	0
3	0
4	0
5	0
6	3.8
7	7.6

Time (in minute)	Temperature (in °C)
8	11.4

From the above observations what conclusion do you draw about the melting point of ice?

15. Describe an experiment to demonstrate that water absorbs heat during boiling at a constant temperature.
16. State (a) the melting point of ice, and (b) the boiling point of water.
17. what is evaporation?
18. State three factors which affect the rate of evaporation of a liquid.
19. Wet clothes dry more quickly on a warm day than on a cold humid day. Explain.
20. Water in a dish evaporates faster than in a bottle. Give reason
21. Why are volatile liquids such as alcohol and spirit stored in tightly closed bottles?
22. A certain quantity of water is heated from 20°C TO 100°C. Its temperature is recorded after 1 minutes each. The observations are

Time (in minute)	Temperature (in °C)
0	20
1	30
2	40
3	50
4	60
5	70
6	80
7	90
8	100

Time (in minute)	Temperature (in °C)
9	100
10	100
11	100
12	100

What conclusion do you draw from the above table about the boiling point of water? Explain.

23. Why is cooling produced on evaporation of a liquid?
24. Explain with an example to demonstrate that when a liquid evaporates, it takes heat from its surroundings.
25. Give two applications of evaporation.
26. Explain why on hot summer days water remains cool in earthen pots.
27. A patient suffering from high fever is advised to put wet cloth strips on his forehead. Why?
28. What do you mean by sublimation? Explain with an example
29. Why does the size of naphthalene balls decrease when left open?
30. Describe an experiment to demonstrate the process of sublimation.