International Indian School Buraidah
Worksheet of the Year 2025-26
Class-9th Subject-Chemistry

Q1. Which of the following cannot be considered a form of matter?
(a) Atom
(b) Water
(c) Humidity
(d) Electron
Answer: (c) Humidity

Q2. Which of the following causes the temperature of a substance to remain constant while it is undergoing a change in its state?
(a) Latent heat
(b) Lattice energy
(c) Loss of heat
(d) None of these
Answer: (a) Latent heat

Q3. When water at 0°C freezes to form ice at the same temperature of 0°C, then it:
(a) Absorbs some heat
(b) Releases some heat
(c) Neither absorbs nor releases heat
(d) Absorbs 3.34 x 105J/kg of heat
Answer: (b) Releases some heat

Q4. Which of the following statement is correct?
(a) Substances that exist as liquids at room temperature typically have melting and boiling points lower than that of room temperature.
(b) The process in which a substance transitions directly from a solid to a gas state without going through the liquid state is known as sublimation.
(c) To convert a temperature from the Celsius scale to the Kelvin scale, add 273 to the given temperature.
(d) The density of ice is lower than that of water.
Answer: (d) The density of ice is lower than that of water.

Q5. Under which of the following circumstances would the distance between molecules of hydrogen gas increase?
(i) Applying greater pressure to hydrogen within a sealed container.
(ii) Leakage of a portion of the hydrogen gas from the container.
(iii) Expanding the volume of the container holding hydrogen gas.
(iv) Introducing additional hydrogen gas into the container without altering its volume.
(a) (i) and (iii)
(b) (i) and (iv)
(c) (ii) and (iii)
(d) (ii) and (iv)
Answer: (c) (ii) and (iii)

Q6. What is the physical state of matter in which particles have the least kinetic energy?
A) Solid
B) Liquid
C) Gas
D) Plasma
Answer: A) Solid

Q7. Which of the following is a characteristic property of solids?
A) Definite shape and volume
B) Indefinite shape and volume
C) Indefinite shape but definite volume

D) Definite shape but indefinite volume
Answer: A) Definite shape and volume

Q8. What happens to the arrangement of particles when a substance changes from solid to liquid state?
A) Particles come closer together
B) Particles move further apart
C) Particles become arranged in a regular pattern
D) None of the above
Answer: B) Particles move further apart

Q9. Which of the following statements about gases is true?
A) Gases have definite shape and volume
B) Gases have definite shape but indefinite volume
C) Gases have indefinite shape and volume
D) Gases have indefinite shape but definite volume
Answer: C) Gases have indefinite shape and volume

Q10. The process of conversion of a solid into a gas without passing through the liquid state is called
A) Evaporation
B) Condensation
C) Sublimation
D) Fusion
Answer: C) Sublimation

Q11. Which of the following substances does not show the property of sublimation?
A) Iodine
B) Camphor
C) Naphthalene
D) Copper
Answer: D) Copper

Q12. Which of the following is a physical change?
A) Rusting of iron
B) Burning of paper
C) Melting of ice
D) Cooking of food
Answer: C) Melting of ice

Q13. Which of the following has the highest intermolecular force?
A) Solid
B) Liquid
C) Gas
D) Plasma
Answer: A) Solid

Q14. The process of changing a liquid into a gas is called
A) Condensation
B) Evaporation
C) Sublimation
D) Fusion
Answer: B) Evaporation

Q15. Which of the following is not a characteristic property of matter?
A) Mass
B) Volume
C) Color
D) Density
Answer: C) Color

Q16. When a gas jar full of air is placed upside down on a gas jar full of bromine vapours, the red-brown vapours of bromine from the lower jar go upward into the jar containing air. In this experiment?
(a) Air is heavier than bromine
(b) Both bromine and air have the same density
(c) Bromine is heavier than air
(d) Bromine cannot be heavier than air because it is going upwards against gravity
Answer: (c) Bromine is heavier than air
Q17. A form of matter has no fixed shape but it has a fixed volume. An example of this matter is
(a) Krypton
(b) Kerosene
(c) Carbon steel
(d) Carbon dioxide
Answer: (b) Kerosene
Q18. What happens to the temperature of water as it boils when heat is consistently applied by a burner?
(a) Rises very slowly
(b) Rises rapidly until steam is produced
(c) First rises and then becomes constant
(d) Does not rise at all
Answer: (d) Does not rise at all

Q-2 In each of the following questions, a statement of Assertion is given, and a corresponding statement of Reason is given just below it. Of the statements, given below, mark the correct answer as:
(a) Both assertion and reason are true, and reason is the correct explanation of assertion.
(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.
(c) Assertion is true, but reason is false.
(d) Assertion is false, but reason is true.
Q.1.
Assertion : A gas can easily be compressed by applying pressure.
Reason : Since the inter-particle spaces between gases are very large, they can decrease by applying pressure**. Ans-a**
Q.2.
Assertion : Gases exert pressure on the walls of the container.
Reason : The intermolecular force of attraction is very strong in gases. **Ans-: c**
Q.3.
Assertion : It is easier to cook food at sea level as compared to higher altitudes.
Reason : The boiling point of water increases at high altitudes**. Ans-c**
Q.4.
Assertion : When a solid melts, its temperature remains the same.
Reason : The heat gets used up in changing the state by overcoming the forces of attraction between the particles.**Ans-a**
Q.5.
Assertion : The solids do not diffuse in air.
Reason : The particles are loosely packed in solids. **Ans-c**
Q.6.
Assertion : The boiling point of water is 100 C.
Reason : The boiling point of water increases at higher altitudes. **Ans-c**

Q.7.
Assertion : The conversion of a solid directly into a gas is known as sublimation.
Reason : Naphthelene does not leave residue when kept open for sometime. **Ans-b**
Q.8.
Assertion : lce floats on water.
Reason : Liquids have lower density than solids. **Ans-.b**
Q.9.
Assertion : Camphor burns with a lot of residue.
Reason : Camphor undergoes sublimation. **Ans-d**
Q.10.
Assertion : The rate of evaporation increases with increase in temperature.
Reason: Increase in temperature decreases the kinetic energy of the particles. **Ans-c**
Q.11.
Assertion : Liquids diffuses more easily as compared to gases.
Reason : Intermolecular forces are greater in liquids than in gases. **Ans-d**
Q.12.
Assertion : Steam is better the boiling water for heating purposes.
Reason : Steam contains more heat in the form of latent heat than boiling water. **Ans-a**
Q.13.
Assertion : Gases diffuses more easily as compared to liquids.
Reason : Intermolecular forces are greater in solids. **Ans-b**
Q.14.
Assertion : There is a change in the temperature of the substance when there it undergoes a change in state through it is still being heated.
Reason : The heat supplied is either absorbed as a latent heat of fusion or a latent heat of vapourisation**. Ans-d**
Q.15.
Assertion : When Sugar and Salt are kept in a container, they take the shape of the container.
Reason : Sugar is liquid. **Ans-c**

Case Study Question 1:
Read the following passage and answer the questions given below.
Every matter is made up of tiny particles. These particles are so tiny that they cThe three characteristics shown by particles of matter are as follows:
(i) There are small voids between particles in a matter. This characteristic is the concept behind the solubility of a substance in other substances.
(ii) Particles of matter show continuous random movements, that is they possess kinetic energy. The spreading of ink in a beaker of glass, smell of agarbattis, etc. are few illustrations that show the movement of particles of a substance.
(iii) The particles of matter attract each other with a force called inter particle force of attraction.
Read the given passage carefully and give the answer of the following questions:
Q 1. Spreading of fragrance of a burning incense stick in a room shows that:
a. particles of matter have spaces between them.
b. particles of matter attract each other.
c. particles of matter are constantly moving.
d. None of the above
Q 2. What happens when we add sugar to water?
a. Volume of water doubles.
b. Volume of water decreases

c. Volume of water remains the same.
d. None of the above
Q 3. A stream of water cannot be cut by fingers. Which property of matter does this observation show?
a. Particles of matter attract each other.
b. Particles of matter have spaces between them.
c. Particles of matter are continuously moving.
d. None of the above
Q 4. When we put some crystals of potassium permanganate in a beaker containing water, we observe that after some time, the whole water turns pink. This intermixing of particles of two different types of matter on their own is called:
a. Brownian motion
b. melting
c. sublimation
d. diffusion
Q 5. Why is the rate of diffusion of liquids higher than that of solids?
a. In the liquid state, particles are tightly packed as compared to solids.
b. In the liquid state, particles move freely as compared to solids.
c. In solid state, particles have least force of attraction between the particles.
d. In solid state, particles cannot be compressed easily.
Answers

1. (c) particles of matter are constantly moving.
2. (c) Volume of water remains the same.
3. (a) Particles of matter attract each other.
4. (d) diffusion
5. (b) In the liquid state, particles move freely as compared to solids

Understanding States of Matter

Read the following passage and answer the questions given below.

A group of students conducted an experiment in which they heated a solid substance in a beaker. As the temperature increased, the solid first melted into a liquid and then gradually turned into vapour. During the phase change from solid to liquid, they noticed that the temperature remained constant even though heat was continuously supplied. One curious student asked, "Where does the heat go if the temperature is not increasing?"

Q1. What is the name of the heat energy absorbed during the change from solid to liquid without a change in temperature?
Ans. Latent heat of fusion.

Q2. Why does the temperature remain constant during the melting of a solid?
Ans. The temperature remains constant because the heat energy supplied is used to overcome the forces of attraction between the particles of the solid, changing it into a liquid. This energy does not increase kinetic energy, hence temperature stays constant.

Q3. Which property of matter allows it to exist in different states (solid, liquid, gas)?
Ans. The property of **inter-particle forces of attraction** and **kinetic energy of particles** determines the state of matter.

Q4. If 100 grams of ice at 0°C is converted into water at 0°C, what kind of energy change has occurred, and what remains unchanged?
Ans. The ice absorbs **latent heat of fusion** to become water, indicating a change in internal energy. The **temperature remains unchanged** at 0°C.

Read the following passage and answer the questions given below.

Ravi hung his wet clothes on a windy day. He noticed that the clothes dried faster than usual. His sister asked why the clothes dried more quickly. Ravi recalled his science lesson, which mentioned that the rate of evaporation depends on several factors such as temperature, surface area, wind speed, and humidity. He also observed that when he rubbed alcohol on his hand, it felt cool.

Q1. Why did Ravi's clothes dry faster on a windy day?
Ans. Because increased wind speed helps to remove the water vapour from the surface of clothes faster, increasing the rate of evaporation.

Q2. How does evaporation cause cooling, as observed in the alcohol example?
Ans. During evaporation, particles absorb heat from the surface (in this case, the skin) to gain energy and escape. This heat loss from the surface causes a cooling effect

Q3. If the humidity is high, how will it affect the rate of evaporation?
Ans. High humidity means the air already contains a lot of water vapour, so evaporation slows down as the air cannot accept more moisture easily.

Q4. Give one reason why evaporation of sweat is essential for the human body.
Ans. Evaporation of sweat cools the body and helps regulate body temperature, preventing overheating.