

CHAPTER-2

A JOURNEY THROUGH STATES OF WATER

VERY SHORT ANSWER TYPE [2 MARKS]:

1. What is water cycle?

Ans: Natural processes through which water moves between the Earth's surface and the atmosphere.

3. What does high temperature have on the rate of evaporation?

Ans: High temperature speeds up evaporation. When water is heated, its molecules gain more energy. The molecules escape from the surface of water more easily and enter the air as surface.

4. When you rub sanitizer on your hands, you feel cool, why?

Ans: The alcohol in the sanitizer evaporates faster than water because it is more volatile, it takes away heat, which creates a cooling sensation.

SHORT ANSWER TYPE [3 MARKS]

1. Compare the properties of ice, liquid and water vapour?

<u>Ans</u> Properties	ICE [SOLID]	LIQUID WATER	GAS [VAPOUR]
Shape	Fixed Shape	No, Takes the shape of container	No Fixed Shape
Volume	Fixed Volume	Fixed Volume	No, fixed Volume fills the container
Particles Arrangement	Tightly packed [Arranged]	loosely Packed	Very far apart
Movements of particle	Vibrate in one place	Move and Slide past one another	Move freely
Compressibility	cannot be compressed	Very Slightly Compressed	Easily Compressed

2. How do clouds form?

Ans: clouds are formed by the process of Evaporation and Condensation.

* The Sun heats water in rivers, lakes oceans and ponds

* water changes into water vapour by the process of Evaporation

* The warm water vapour rises into the

atmosphere.

* The water vapour cools and condenses into tiny water droplets or ice crystals.

* These tiny droplets gather together to form clouds.

4. Write the properties of H_2O ?

Ans ① Water is colourless - It has no colour

② Water is odourless - It has no smell

③ Water is tasteless - No taste

④ Water has no fixed volume

⑤ Water has no fixed shape

⑥ Water can dissolve many substances

⑦ Water exists in three states

⑧ Pure water is transparent.

⑨ It is essential for all living organism and has many unique properties.

5. What is melting point or freezing point of H_2O ?

Ans : Melting Point:

The melting point is the temperature at which a solid changes into a liquid.

* Melting point of ice is $0^\circ C$ ($32^\circ F$)

* Ice melts into water at $0^\circ C$

Freezing point:

The freezing point is the temperature at which a liquid changes into solid

* Freezing point of water is $0^\circ C$ ($32^\circ F$)

* Water freezes into ice at $0^\circ C$

LONG ANSWER TYPE: [5M]

1. Describe the uses of H_2O :

Ans: Domestic Use:

Water is essential for drinking, cooking, washing and preparing sterile solution.

Agriculture:

Water is used for irrigation, allowing crops to grow, dissolve fertilizers and pesticides.

Electricity Generation:

Water is used to produce hydroelectricity in dams and also in rural power plant and nuclear reactors.

Cooling Agent:

Due to its ability to absorb large amount of heat, water serves as an efficient coolant in car radiators and other cooling system.

2. Describe the importance of water:

Ans: Water is essential for various vital functions in human body. It is used for drinking to maintain hydration and overall health.

* Water plays a vital role in Industries like Dyeing Industry, Tanning Industry, Steel Industry, and also in Alcohol industry.

* In Medicine, Distilled water is commonly used in medical applications, such as in injections and various pharmaceutical.

Solution that requires a water base.

* Water can split into hydrogen and oxygen through chemical process, raw materials for producing chemicals like ammonia, nitric acid and hydrochloric acid.

3. What are the factors affecting the solubility of air in H_2O ?

Ans: The amount of air that dissolve in water depends on following factors:

Temperature :-

* Cold water dissolves more air than warm water

* As the temperature increases, the solubility of air decreases.

Pressure :

* High pressure allows more air to dissolve in water.

* Lower pressure reduces the amount of dissolved air.

Presence of impurities:

* Pollutants and other dissolved substances can reduce the amount of air that dissolve in water.

5. Define the Term:

(i) Latent Heat of Vaporization:

The amount of heat energy required to change a liquid into a gas (vapour) at its boiling point without any change in temperature.

(ii) Density:

Density is the amount of mass present in a given volume of a substance.
[Ex] * Ice is less dense than liquid water so it floats on water.

* A stone is denser than water, so it sinks.

(iii) Conduction:

Conduction is the transfer of heat through direct contact, without the particles moving from one place to another.

Class Work Writing:

Very Short Answer Type:

3, 4

Short Answer type:

1, 2, 4, 5

Long Answer:

2, 3, 5 (i), (ii), (iii)