UNIQUE STUDY POINT

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Class: VI	**Subject:** Science	**Session:** 2025-26
Chapter: 08 - A Journey through States of Water	**Time:** 1½ Hours	**Max. Marks:** 40

General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five sections A, B, C, D and E.
3. Section A contains 10 MCQs of 1 mark each.
4. Section B contains 4 questions of 2 marks each.
5. Section C contains 3 questions of 3 marks each.
6. Section D contains 1 question of 5 marks.
7. Section E contains 2 Case Study Based questions of 4 marks each.

SECTION A - Multiple Choice Questions (1 mark each)

1. Which of the following best describes evaporation?
(a) Conversion of water vapour into liquid state
(b) Conversion of water into its vapour state
(c) Conversion of ice into water
(d) Conversion of water into ice

2. The process of conversion of water vapour into its liquid state is called:
(a) Evaporation
(b) Melting
(c) Condensation
(d) Freezing

3. Which state of water has a fixed shape?
(a) Ice
(b) Water
(c) Water vapour
(d) Steam

4. Water droplets appear on the outer surface of a glass containing ice-cold water due to:
(a) Evaporation
(b) Condensation
(c) Melting
(d) Freezing

5. Which of the following conditions will make water evaporate faster?

(a) High humidity
(b) Low temperature
(c) Large exposed surface area
(d) Covered container

6. The circulation of water between the Earth's surface and atmosphere is known as:
(a) Water flow
(b) Water cycle
(c) Water movement
(d) Water rotation

7. Dew drops are formed due to:
(a) Evaporation of water
(b) Condensation of water vapour
(c) Melting of ice
(d) Freezing of water

8. Which of the following is NOT a factor affecting the rate of evaporation?
(a) Temperature
(b) Humidity
(c) Air movement
(d) Color of water

9. The amount of water vapour in the air is called:
(a) Pressure
(b) Humidity
(c) Temperature
(d) Density

10. Water stored in an earthen pot becomes cool due to:
(a) Condensation
(b) Evaporation causing cooling effect
(c) Melting
(d) Freezing

SECTION B - Short Answer Questions (2 marks each)

11. Explain why ice and water are considered the same substance despite having different properties.

12. Why do we see more dew drops in the morning than in the afternoon?

13. List two conditions that can slow down the rate of evaporation of water.

14. Why does water disappear from wet clothes when they are hung on a clothesline?

SECTION C - Short Answer Questions (3 marks each)

15. Describe the three states of water with one example of each from daily life.

16. Explain how evaporation causes a cooling effect. Give one example from daily life.

17. Why do clothes dry faster on a hot, windy day compared to a cold, humid day? Explain.

SECTION D - Long Answer Question (5 marks)

18. Explain the water cycle with a labeled diagram. Describe the role of evaporation and condensation in this cycle.

SECTION E - Case Study Based Questions (4 marks each)

19. Case Study 1: The Mystery of the Disappearing Puddles

After a rainy morning, Aavi and Thirav noticed large puddles in their school playground. When they returned in the evening to play, they were surprised to find that most of the water had disappeared. Aavi thought the water must have seeped into the ground, while Thirav believed something else had happened to the water.

To investigate, they took a tablespoon of water and placed it on a steel plate. They observed the plate regularly and noticed that the water gradually disappeared, even though the plate was non-porous and water couldn't seep through it.

Answer the following questions:
(a) What happened to the water on the steel plate? (1 mark)
(b) Explain the process by which water disappeared from the puddles. (2 marks)
(c) Why did the water disappear faster from the puddles in the evening than it would have at night? (1 mark)

20. Case Study 2: The Earthen Pot Cooler

In summer, many households in rural India use earthen pots (matkas) to keep drinking water cool. When water is stored in an earthen pot, it seeps through the tiny pores on the pot's surface. The water that reaches the outer surface then undergoes a change.

Similarly, a pot-in-pot cooler can be made by placing a smaller pot inside a larger one with wet sand between them. This ancient cooling method doesn't require electricity and can keep vegetables and fruits fresh for several days.

Answer the following questions:
(a) Why does water stored in an earthen pot remain cooler than water stored in a steel container? (2 marks)
(b) What process is responsible for the cooling effect in the pot-in-pot cooler? (1 mark)
(c) Why is it necessary to keep the sand moist in a pot-in-pot cooler? (1 mark)

DETAILED ANSWER KEY - PAPER 01

SECTION A - Answers to MCQs

1. (b) Conversion of water into its vapour state
Evaporation is the process by which liquid water changes into water vapour (gaseous state).

2. (c) Condensation
Condensation is the process of conversion of water vapour into its liquid state.

3. (a) Ice
Ice (solid state) has a fixed shape and retains its shape irrespective of the container.

4. (b) Condensation
Water vapour from the air condenses on the cold outer surface of the glass.

5. (c) Large exposed surface area
Greater surface area exposed to air increases the rate of evaporation.

6. (b) Water cycle
The water cycle is the continuous circulation of water between Earth's surface and atmosphere.

7. (b) Condensation of water vapour
Dew drops form when water vapour in the air condenses on cold surfaces in the morning.

8. (d) Color of water
The color of water does not affect the rate of evaporation.

9. (b) Humidity
Humidity refers to the amount of water vapour present in the air.

10. (b) Evaporation causing cooling effect
Water seeps through the porous earthen pot and evaporates, causing a cooling effect.

SECTION B - Answers to Short Answer Questions

11.

Ice and water are the same substance because:
- Ice can be converted into water by heating (melting)
- Water can be converted into ice by cooling (freezing)
- They are just different states (forms) of the same substance with different properties
- Ice is the solid state while water is the liquid state of H_2O

12.

We see more dew drops in the morning because:
- At night, the temperature drops significantly and surfaces become cold
- Water vapour present in the air condenses on these cold surfaces to form dew drops
- In the afternoon, the temperature rises and these dew drops evaporate
- The cooler morning temperature favors condensation

13.

Two conditions that can slow down evaporation:
• **High humidity:** When the air already contains a large amount of water vapour, evaporation is slower
• **Low temperature:** Cold conditions reduce the rate of evaporation as less energy is available for water molecules to escape

14.

Water disappears from wet clothes due to evaporation:
• The water on the wet clothes gets converted into water vapour
• This process is called evaporation
• The water vapour mixes with the air and becomes invisible
• This process continues until the clothes become completely dry

SECTION C - Answers to Short Answer Questions

15.

The three states of water are:

1. Solid State (Ice):
• Has a fixed shape and volume
• Does not flow
• Example: Ice cubes in refrigerator, snow, hail

2. Liquid State (Water):
• Does not have a fixed shape but has fixed volume
• Takes the shape of the container
• Can flow
• Example: Water in rivers, lakes, and drinking water

3. Gaseous State (Water Vapour):
• Neither fixed shape nor fixed volume
• Spreads in all available space
• Invisible
• Example: Steam from boiling water, water vapour in air

16.

Evaporation causes cooling effect because:
• During evaporation, water molecules need energy to escape from the liquid surface
• They take this energy (heat) from the surroundings
• As heat is removed from the surroundings, it causes a cooling effect

Example from daily life:
When we sweat on a hot day, the sweat evaporates from our skin taking heat from our body, making us feel cooler. This is why we feel cool when a fan blows air over our sweating skin.

17.

Clothes dry faster on a hot, windy day due to several factors:

Hot day effects:

• Higher temperature increases the rate of evaporation
• More energy is available for water molecules to escape

Windy day effects:
• Wind carries away the water vapour from near the clothes
• This allows more water to evaporate continuously

Cold, humid day effects:
• Low temperature slows down evaporation
• High humidity means air already contains lots of water vapour
• Less space available in air for more water vapour, so evaporation is very slow

SECTION D - Answer to Long Answer Question

18.

The Water Cycle:

The water cycle is the continuous circulation of water between the Earth's surface and the atmosphere. It involves several processes:

Main Components:
1. **Oceans, Rivers, and Lakes:** Large water bodies on Earth's surface
2. **Evaporation:** Water from water bodies, soil, and plants converts into water vapour
3. **Water Vapour:** Rises up in the atmosphere as it is lighter than air
4. **Condensation:** As vapour rises, it cools and condenses around dust particles to form tiny water droplets
5. **Cloud Formation:** Tiny droplets combine to form clouds
6. **Precipitation:** When droplets become heavy, they fall as rain, snow, or hail
7. **Collection:** Water returns to Earth and flows back into water bodies or seeps into ground

Role of Evaporation:
• Converts liquid water into water vapour
• Takes water from Earth's surface to atmosphere
• Driven by heat energy from the sun

Role of Condensation:
• Converts water vapour back into liquid water
• Forms clouds in the atmosphere
• Leads to precipitation, returning water to Earth

[Note: Students should draw a labeled diagram showing sun, water bodies, evaporation arrows going up, clouds, condensation, rain arrows coming down, and ground water]

SECTION E - Answers to Case Study Based Questions

19. Case Study 1 - The Mystery of the Disappearing Puddles

(a) The water on the steel plate evaporated and got converted into water vapour, which mixed with the air and became invisible. (1 mark)

(b) The water disappeared from the puddles through the process of evaporation. While some water

may have seeped into the ground, a significant amount was converted into water vapour. When water is exposed to air, especially in sunlight or warm conditions, water molecules gain energy and escape from the liquid surface as vapour. Since the steel plate experiment showed that water can disappear without seeping through, this proves that evaporation is the main process responsible for water disappearing from puddles. (2 marks)

(c) Water disappeared faster from the puddles in the evening (daytime) rather than at night because during the day there is sunlight which provides heat energy. Higher temperature increases the rate of evaporation. At night, the temperature is lower, so evaporation would be much slower. (1 mark)

20. Case Study 2 - The Earthen Pot Cooler

(a) Water stored in an earthen pot remains cooler because the pot is porous and allows water to seep through its tiny pores to the outer surface. This water on the outer surface evaporates continuously. During evaporation, water molecules take heat from the pot and the remaining water inside, causing a cooling effect. A steel container is non-porous, so no evaporation occurs on its surface and hence no cooling. (2 marks)

(b) The evaporation process is responsible for the cooling effect in the pot-in-pot cooler. Water from the wet sand evaporates, taking heat away and cooling the inner pot. (1 mark)

(c) It is necessary to keep the sand moist because evaporation can only occur when water is present. If the sand dries out, there will be no water to evaporate, and the cooling effect will stop. Moist sand ensures continuous evaporation and therefore continuous cooling. (1 mark)
