

Journey through the states of water

- **Case study-**

Ritu left a bowl of hot soup on the balcony in winter. After 20 minutes, she noticed steam rising from the bowl. After another 10 minutes, tiny droplets formed under the balcony railing above the bowl.

A. Answer the questions:

1. Why was steam rising from the bowl?
2. Why did droplets form on the railing?
3. Which two processes are shown in this situation?

B. Fill in the blanks:

1. The process of changing a liquid into vapour is called _____.
2. Water vapour changes back into liquid on cooling. This process is called _____.
3. Water freezes at _____ °C to form ice.
4. Water boils at _____ °C.

C. Diagram-Based Question:

Below is a diagram showing the changes of state of water.

Fill in the missing processes:

Ice → _____ → Water → _____ → Water vapour

(Also show reverse processes.)

D. Choose the correct option:

1. **Assertion (A):** Evaporation was taking place from the hot soup.
Reason (R): Evaporation happens only when water reaches 100°C.
A. Both A and R are true, and R is the correct explanation of A
B. Both A and R are true, but R is not the correct explanation
C. A is true but R is false
D. A is false but R is true
2. **Assertion (A):** No droplets would have formed if the railing was warm.
Reason (R): Condensation needs a cold surface for water vapour to cool and change back into liquid.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation
- C. A is true but R is false
- D. A is false but R is true