St. Andrews Scots School

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Session: 2026 – 2027

(Answer Key)

Class: VII | **Subject: Science** | **Chapter: Heat Transfer in Nature**

Self-Assessment: **Page No. 84**

A. Multiple Choice Questions:

Tick the correct options:

1. (b) 2. (d) 3. (b)

B. Assertion-Reason Based Question:

1. (c) 2. (a)

Self-Assessment: **Page No. 87**

A. Multiple Choice Questions:

Tick the correct options:

1. (b) 2. (c) 3. (b) 4. (c)

B. Assertion-Reason Based Question:

1. (d) 2. (a)

Exercise

Section-A

A. Oral Questions:

1. Heat from the Sun reaches the Earth through radiation, which does not require any medium to travel.
2. Cooking pots have wooden or plastic handles because these materials are poor conductors of heat, preventing burns while handling hot utensils.
3. During the day, the air above land heats up, becomes lighter and rises, while cooler air from the sea moves in to take its place, forming a sea breeze.

B. Multiple Choice Questions:

1. (c) 2. (b) 3. (d) 4. (a) 5. (b) 6. (b)

C. Assertion-Reason Based Question:

1. (a) 2. (c) 3. (d)

D. Case-Based Questions:

Case-1

1. The metal spoon conducted the most heat because metals are good conductors of heat.
2. The plastic ruler is a poor conductor of heat (insulator), as it remained barely warm.
3. The method of heat transfer responsible for this situation is conduction.

Case-2

1. The air near the lake felt cooler during the day because the water heats up more slowly than the land, keeping the air above it cooler.
2. A breeze blows from the water towards the land (sea breeze) during the day because the cooler air over the water moves in to replace the warm rising air over the land.
3. The modes of heat transfer involved are radiation (from the Sun) and convection (movement of warm and cool air).

Section-B

A. Very Short Answer Questions:

1. Temperature is the measure of how hot or cold an object is.
2. Two poor conductors of heat are wood and plastic.
3. Radiation is the method of heat transfer that works in a vacuum.
4. Solar cookers are black from the inside because black surfaces absorb more heat.
5. The water cycle is the continuous process of evaporation, condensation and precipitation that circulates water on Earth.

B. Short Answer Questions:

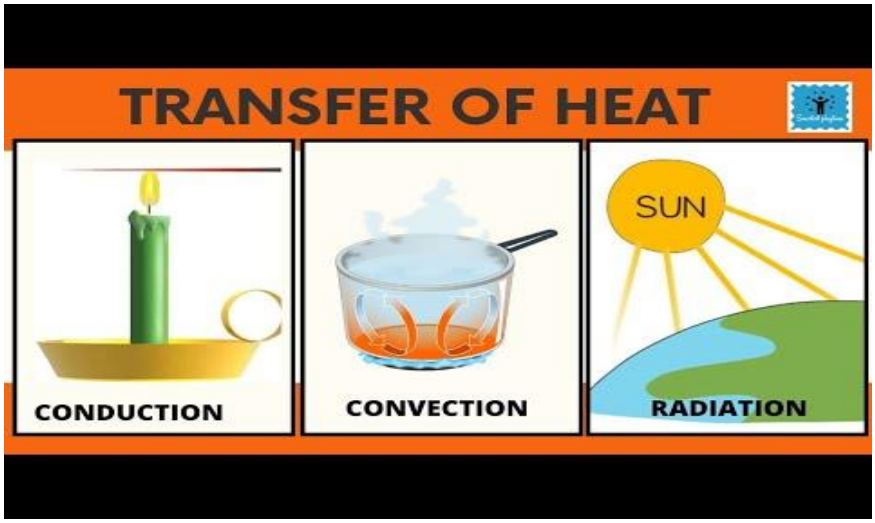
1. Conduction is the transfer of heat through direct contact.
   Example: When a metal spoon is placed in hot tea, the heat travels from the hot end to the cool handle.
2. A sea breeze occurs during the day because land heats up faster than water. The warm air over the land rises and the cool air from the sea moves in to take its place.



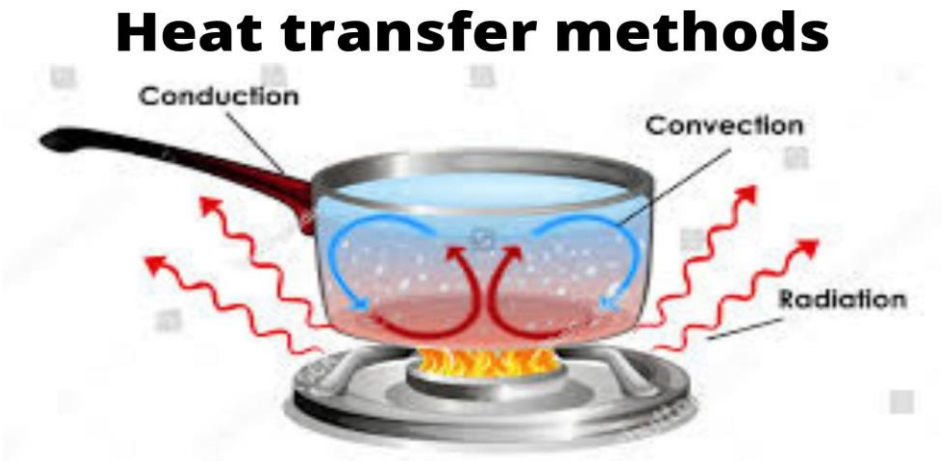
3. Warm air rises because it is lighter (less dense), while cool air sinks because it is heavier (more dense).
4. Water moves underground through infiltration—it seeps into soil and collects in aquifers. We use this groundwater by pumping it out through wells or tube wells for drinking, farming and other needs.

C. Long Answer Questions:

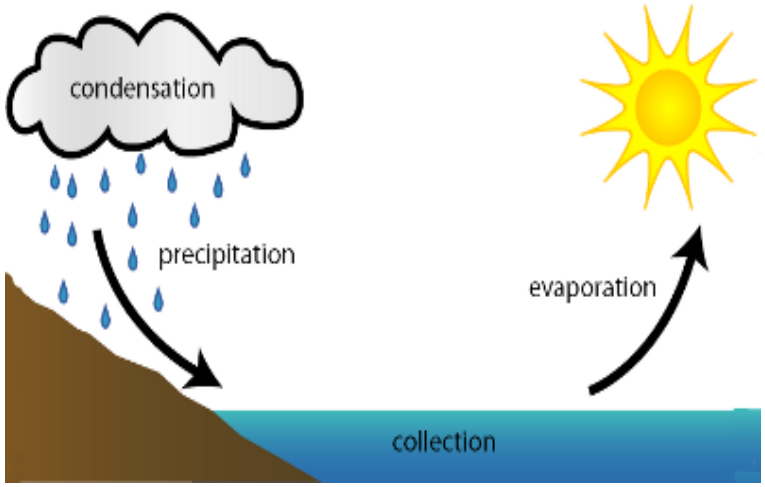
1. The three modes of heat transfer are:
   (a) Conduction: Transfer of heat through solids by contact (e.g., heating a metal rod).
   (b) Convection: Transfer of heat through liquids and gases by movement (e.g., boiling water or sea breeze).
   (c) Radiation: Transfer of heat without a medium (e.g., heat from the Sun reaching Earth).



2. When boiling water in a **metal pan** over a flame:
   (a) Conduction transfers heat from the flame to the pan and from the pan to the water.
   (b) Convection circulates heat in the water as hot water rises and cool water sinks.
   (c) Radiation transfers heat from the flame to the pan without any direct contact.
   All three modes work together to heat the water evenly.



3. The **water cycle** involves:
   (a) Evaporation: Water from oceans, lakes and rivers changes into vapour due to the Sun's heat.
   (b) Condensation: Water vapour cools and forms clouds.
   (c) Precipitation: Clouds release water as rain, snow or hail.
   (d) Collection: Water gathers again in rivers, lakes and oceans, repeating the cycle continuously.



D. Application-Based Questions:

1. The black car seat felt hotter because black surfaces absorb more heat from sunlight, while white surfaces reflect most of it. Therefore, the black seat became warmer than the white one.

2. People in desert regions prefer to wear light-coloured clothes because light colours reflect sunlight instead of absorbing it. This helps them stay cooler in the intense heat of the desert.

E. Picture-Based Question:

(a) Situation A.