



HEAT

EXERCISE

Question 1:

State similarities and differences between the laboratory thermometer and the clinical thermometer.

Answer:

Similarities: Both thermometer are used to measure temperature and both of them use mercury.

Differences: Clinical thermometer is used to measure human body temperature whereas, laboratory thermometer is used to measure temperature of other object which has higher temperature than human body temperature.

Question 2:

Give two examples each of conductors and insulators of heat.

Answer:

Examples of conductors are metal and steel and examples of insulators are wood and plastic.

Question 3:

Fill in the blanks.

- The hotness of a body is determined by its _____.
- Temperature of boiling water cannot be measured by a _____ thermometer.
- Temperature is measured in degree _____.
- No medium is required for transfer of heat by the process of _____.
- A cold steel spoon is dipped in a cup of hot milk. It transfers heat to its other end by the process of _____.
- Clothes of _____ colours absorb heat better than clothes of light colours.

Answer:

- | | | |
|-----------------|----------------|-------------------|
| (a) temperature | (b) Clinical | (c) Celsius |
| (d) radiation | (e) conduction | (f) black or dark |

Question 4:

Match the columns.

Column 1	Column 2
(a) Land breeze blows during	(i) Summer
(b) Sea breeze blows during	(ii) Winter
(c) Dark coloured clothes are preferred during	(iii) Days
(d) Light coloured clothes are preferred during	(iv) Night

Answer:

- (a) – (iv)
(b) – (iii)
(c) – (ii)
(d) – (i)

Question 5:

Discuss why wearing more layers of clothes during winter keeps us warmer than wearing just one thick piece of clothing.

Answer:

Wearing more number of clothes makes air gap which does not allow heat to pass out but in case of one thick cloth it is not as such, so we should wear more layers of clothes during the winter to keep us warmer.

Question 6:

Look at the figure, mark where the heat is being transferred by conduction, by convection, and by radiation.

**Answer:**

- (i) Heat is being transferred in the steel vessel by conduction.
(ii) Heat is being transferred from vessel to water by convection.
(iii) Heat is being transferred from vessel to surroundings by radiation.

Question 7:

In places of hot climate, it is advised that the outer walls of houses be painted white. Explain.

Answer:

In places of hot climate, it is advised that the outer walls of houses be painted white because white colour does not absorb any heat radiation from the sun which keeps inside cool even if there is hot climate outside the house.

Question 8:

One litre of water at 30°C is mixed with one litre of water at 50°C . The temperature of the mixture will be

- (a) 80°C
- (b) more than 50°C but less than 80°C
- (c) 20°C
- (d) between 30°C and 50°C

Answer:

(d) Temperature of mixture is in between 30°C to 50°C because water at 50°C loses some heat and water at 30°C gains some heat.

Question 9:

An iron ball at 40°C is dropped in a mug containing water at 40°C . The heat will

- (a) flow from iron ball to water
- (b) not flow from iron ball to water or from water to iron ball
- (c) flow from water to iron ball
- (d) increase the temperature of both

Answer:

(b) As heat can only flow from higher temperature to lower temperature. Thus, the heat will not flow from iron ball to water or vice-versa.

Question 10:

A wooden spoon is dipped in a cup of ice cream, then its other end

- (a) becomes cold by the process of conduction
- (b) becomes cold by the process of convection
- (c) becomes cold by the process of radiation
- (d) does not become cold

Answer:

(d) It does not become cold because it is an insulator.

Question 11:

Stainless steel pans are usually provided with copper bottoms. The reason for this could be that

- (a) copper bottom makes the pan more durable
- (b) such pans appear colourful
- (c) copper is a better conductor of heat than the stainless steel
- (d) copper is easier to clean than the stainless steel

Answer:

(c) As copper is a better conductor of heat than the stainless steel, so stainless steel pans are usually provided with copper bottoms.

