



## CLASS NOTES-ANSWERS

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

Solution:

Similarities are:

- (i) Both thermometers consist of long narrow uniform glass tubes.
- (ii) Both have a bulb at one end that contain mercury.
- (iii) Both use Celsius scale on the glass tube.

Differences:

Clinical Thermometer	Laboratory thermometer
Temperature range is 35 to 42 ° c	Temperature range is -10 to 110 ° c
Used to measure human body temperature	Used to measure temperature in the laboratory
It has kink which prevents immediate backflow of mercury	It does not have a kink

2. Give two examples each of conductors and insulators of heat.

Solution:

Conductors - aluminium, iron

Insulators - plastic, wood.

3. Fill in the blanks.



- a) The hotness of an object is determined by its temperature.
- b) Temperature of boiling water cannot be measured by a clinical thermometer.
- c) Temperature is measured in degree Celsius.
- d) No medium is required for transfer of heat by the process of radiation.
- e) A cold steel spoon is dipped in a cup of hot milk. It transfers heat to its other end by the process of conduction.
- f) Clothes of dark colours absorb heat better than clothes of light colours.

## 4. Match the following.

Column-I	Column-II
(i) Land breeze blows during	(a) summer
(ii) Sea breeze blows during	(b) winter
(iii) Dark coloured clothes are preferred during	(c) day
(iv) Light coloured clothes are preferred during	(d) night

## Solution:

Column I	Column II
(i) The land breeze blows during	(d) night



(ii) The sea breeze blows during	(c) day
(iii) Dark coloured clothes are preferred during	(b) winter
(iv) Light coloured clothes are preferred during	(a) summer

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

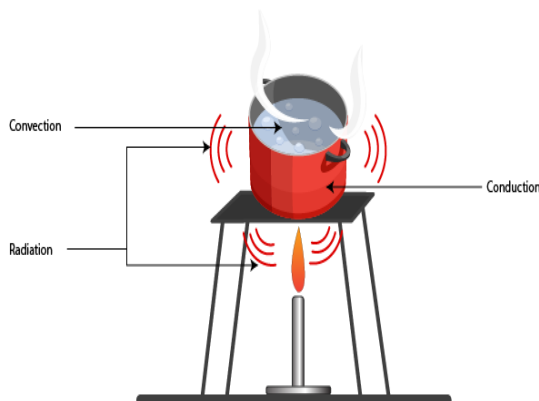
Solution:

More layers of clothing keep us warm in winters as they have a lot of space between them. This space gets filled up with air. Air is a bad conductor, it does not allow the body heat to escape out.

6. Look at figure 4.6. Mark where the heat is being transferred by conduction, by convection and by radiation.



Solution:



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

**Solution:**

In places of hot climate it is advised that the outer wall of houses be painted white because white colour reflects heat and the houses do not heat up too much. White is a poor absorber of heat. This helps in keeping the house cool.

8. One litre of water at  $30^{\circ}\text{C}$  is mixed with one litre of water at  $50^{\circ}\text{C}$ . The temperature of the mixture will be:

- |                         |  |
|-------------------------|--|
| a) $80^{\circ}\text{C}$ | b) More than $50^{\circ}\text{C}$ but less than $80^{\circ}\text{C}$ |
| c) $20^{\circ}\text{C}$ | d) Between $30^{\circ}\text{C}$ and $50^{\circ}\text{C}$             |

**Solution:** d) Between  $30^{\circ}\text{C}$  and  $50^{\circ}\text{C}$

- because hot water loses the heat and simultaneously cold water gains heat. This keeps the temperature in between  $30^{\circ}\text{C}$  and  $50^{\circ}\text{C}$ .

9. An iron ball at  $40^{\circ}\text{C}$  is dropped in a mug containing water at  $40^{\circ}\text{C}$ .

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.

**Solution:** b) not flow from iron ball to water or from water to iron ball  
- because both of them have the same temperature of  $40^{\circ}\text{C}$ .

10. A wooden spoon is dipped in a cup of ice-cream. 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

**Solution:**

- d) does not become cold,  
because wood is a bad conductor of heat.

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

**Solution:** c) copper is better conductor of heat than the stainless steel