CLASS -VII

SUBJECT- SCIENCE

CHAPTER -4 (HEAT)

EXERCISE **BY- DEEPAK . S. BHADORIA**

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

Solution 1:

Similarities	**Differences**
Both are used to measure temperature.	Clinical thermometers are used to measure temperature of human body.
The bulbs of both the thermometers are filled with mercury.	The range of clinical thermometer is 35°C to 42°C. Whereas, the range of laboratory thermometer is generally from –10°C to 110°C

2. Give two examples each of conductors and insulators of heat.
Solution 2:
Examples of conductors: Cooper, Iron

Examples of insulators: Plastic, Wood

3. Fill in the blanks:
(a) The hotness of an object is determined by its _____.
Solution 3 (a):
Temperature.

(b) Temperature of boiling water cannot be measured by a _____ thermometer.
Solution 3 (b):
Clinical

(c) Temperature is measured in degree _____.
Solution 3 (c):
Celsius.

(d) No medium is required for transfer of heat by the process of _____.
Solution 3 (d):

Radiation.

(e) A cold steel spoon is dipped in a cup of hot milk. Heat is transferred to its other end by the process of _____.
Solution 3 (e):
Conduction.

(f) Clothes of _____ colours absorb more heat better than clothes of light colours.
Solution 3 (f):
Dark.

4. Match the following :

(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 4:
(i) Land breeze blows during (d) night

(ii) 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 5:
Air is a poor conductor of heat. When we wear multiple layers of clothes, the air gets trapped between the clothing layers and prevents heat loss from our body. So, multiple layers keep us warmers as compared to a single layer.

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

Solution 6:
• Radiation: Transfer of heat from the burner to the pan.

• Conduction: Transfer of heat from the pan to water.

• Convection: Transfer of heat within the water.

7. In places of hot climate it is advised that the outer walls of houses be painted white. Explain.
Solution 7:
The white reflects back most of the heat that falls on it, so, it is advisable that the outer walls of houses should be painted white in winters.

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
Solution 8:
It will be between 30°C and 50°C.

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.
Solution 9:
Heat flows from a body of higher temperature to a body of lower temperature. Here the temperature of both the objects is same. So, heat will not flow from one object to other or there will not be any change in the temperature of both the two objects.

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 10:
It does not become cold because it is 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 11:
Copper is better conductor of heat in comparison to stainless steel.