



UNIQUE STUDY POINT

Chapter 4 Heat NCERT Solutions

EXERCISES

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

Answer: Similarities:

- Working principle of both the thermometer is same.
- Both are used to measure temperature.
- Both have a thick walled glass tube enclosing a fine uniform bore capillary tube.
- Mercury is used in both thermometers to measure temperature.
- Both have Celsius and Fahrenheit markings.

Differences:

- Laboratory thermometer is used to measure temperature of different objects in factories and laboratory where as clinical thermometer is used to measure the temperature of human beings only.
- Generally, laboratory thermometer has temperature range from -10°C to 110°C whereas clinical thermometer has temperature range from 35°C to 42°C .
- Usually laboratory thermometer does not have any constriction whereas clinical thermometer has the small constriction near the mercury bulb.
- Laboratory thermometer has to be kept upright while taking the reading whereas clinical thermometer can be tilted while taking reading.

Or

Differences

Clinical Thermometer	Laboratory thermometer
Temperature range if 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

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

Answer: Two examples of conductors of heat are:

- (i) Aluminium
- (ii) Iron

Two examples of insulators of heat are:

- (i) Wood
- (ii) Plastic

Question 3: Fill in the blanks:

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

Answer: (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 **Celcius**.

(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. Heat is transferred to its other end by the process of **conduction**.

(f) Clothes of **dark** colours absorb more heat better than clothes of light colours.

Question 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

Answer:

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

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

Answer: More layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing because air gets trapped in-between layer. As air is a bad conductor of heat it does not allow the escape of the heat from the body.

Question 6: 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 to paint the outer walls of houses as white because a light colour such as white reflects back most of the heat that falls on it. Hence, a light colour tends to keep the house cool.

Question 7: 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) between 30°C and 50°C

Question 8: 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) not flow from iron ball to water or from water to iron ball.

Question 9: 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.

Answer: (d) does not become cold.

Question 10: 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) copper is a better conductor of heat than the stainless steel.

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