



PHYSICS

BOOKS - CENGAGE PHYSICS

TRANSFER OF HEAT

Question

1. In a burning matchstick, with flame at one end, the other end held by you never becomes hot (as shown in fig.) Can you guess the

reason?



7.3. Burning matchstick



[Watch Video Solution](#)

2. You feel hot while standing in sunlight, but cool in the shade of a building. Why?



[Watch Video Solution](#)

Mandatory Exercise Exercise Set I

1. Mention the possible mode of heat transfer in the following: air, water, copper, wood, and vacuum.



[Watch Video Solution](#)

2. What is the disadvantage if the deep freezer is placed at the bottom of a refrigerator?



[Watch Video Solution](#)

3. Is it possible to have radiation in a gas?



[Watch Video Solution](#)

4. Say true or false:

Conduction takes place in vacuum.



[Watch Video Solution](#)

5. Say true or false:

Radiation is the fastest mode of heat transfer.



Watch Video Solution

6. Say true or false:

Metals are bad conductors of heat.



Watch Video Solution

7. Say true or false:

Highly polished surfaces are good emitters of heat.



[Watch Video Solution](#)

8. Say true or false:

Silvering in thermos flask is to reduce radiation.



[Watch Video Solution](#)

9. Say true or false:

Good absorbers are good reflectors.



Watch Video Solution

10. Explain the following:

A chimney smokes when a fresh fire is started under it.



Watch Video Solution

11. Explain the following:

Small holes are provided at the bottom of the chimney in an oil lamp.



Watch Video Solution

12. Explain the following:

Two thin blankets one over the other can warm us better than a single blanket of double thickness.



Watch Video Solution

13. Explain the following:

People on top of mountains have a higher risk of sun burns.



Watch Video Solution

14. Explain the following:

Land becomes warmer than water during the day.



Watch Video Solution

15. Explain the following:

On a cold day, metal objects feel colder than non-metal objects.



Watch Video Solution

16. Explain the following:

It is cool in the shade while it is hot outside.



Watch Video Solution

17. Explain the following:

Cooking utensils are often blackened at the bottom but polished at the top and sides.



Watch Video Solution

18. Explain the following:

It is more comfortable to wear white clothes than dark clothes in summer.



Watch Video Solution

19. Explain the following:

Glass apparatus which is heated by a Bunsen burner is usually placed on wire gauze.



Watch Video Solution

20. Explain the following:

The panels of a solar water heater are kept slanting.



Watch Video Solution

21. Explain the following:

Ventilators are placed high on the walls of the room.



Watch Video Solution

22. Explain the following:

Glass is a suitable material to use in a green house.



Watch Video Solution

23. Explain the following:

The bit of a soldering iron is made of copper and the handle is usually made of plastic.



Watch Video Solution

24. Explain the following:

Cloudy nights are hotter.



Watch Video Solution

25. Explain the following:

You do not burn your fingers when you hold the unlighted end of the match.



Watch Video Solution

26. Explain the following:

The basement of a house usually remains cool during summer.



Watch Video Solution

27. Explain the following:

Convection is almost impossible in solid bodies.



Watch Video Solution

28. Explain the following:

In cold countries, the floor is generally made of wood.



Watch Video Solution

29. Explain the following:

Ice is preserved by covering it with sawdust.



Watch Video Solution

30. If all bodies emit radiation continuously.

Why doesn't the temperature of the body drop?



Watch Video Solution

31. On a hot day, a metal object feels hotter than a non metal, why?



Watch Video Solution

32. Houses in cold countries have thicker walls. Why?



Watch Video Solution

33. If we hold two rods, one is of metal and other is of wood and put one end of each on fire. In which rod will the other end become hot faster?



Watch Video Solution

34. What is a black body ? How can it be realised in practice ?



Watch Video Solution

Mandatory Exercise Exercise Set II

1. Heat from sun reaches us by

A. conduction

B. convection

C. radiation

D. reflection

Answer: C



Watch Video Solution

2. A material medium is not necessary for

A. conduction

B. convection

C. radiation

D. reflection

Answer: C



Watch Video Solution

3. An example of good conductor of heat is

A. wood

B. cork

C. copper

D. glass

Answer: C



Watch Video Solution

4. Vacuum between the walls of a flask reduce heat transfer by

A. conduction only

B. radiation only

C. convection only

D. both conduction and convection

Answer: D



Watch Video Solution

5. The fastest mode of transfer of heat is

A. conduction only

B. radiation only

C. convection only

D. conduction and convection

Answer: B



Watch Video Solution

6. The arranged one in the decreasing order of thermal conductivity is

A. copper, water, air

B. air, water, copper

C. air, copper, water

D. copper, air, water

Answer: A



Watch Video Solution

7. Dark-coloured objects are good for

A. conduction

B. convection

C. reflection

D. absorption

Answer: D



Watch Video Solution

8. Good absorbers are also good in

A. conduction

B. convection

C. radiation

D. reflection

Answer: C



Watch Video Solution

9. Polishing a surface helps increase

A. conduction

B. convection

C. radiation

D. reflection

Answer: D



Watch Video Solution

10. Four identical copper balls are painted blue, red, black, and white. After heating them to the same temperature, the one which cools fastest is the _____ ball.

A. red

B. black

C. white

D. blue

Answer: B



Watch Video Solution

11. If energised atom/molecules carry the energy by actual movement, it is called

A. conduction

B. convection

C. radiation

D. none of these

Answer: B



Watch Video Solution

12. Which is wrong for conduction?

A. There is no transfer of particles.

B. Kinetic energy is transferred.

C. Energy is transferred from higher temperature to lower temperature

D. Particles are stationary.

Answer: D



Watch Video Solution

13. Match can conduct heat more easily because of large numbers of

A. free protons

B. free electrons

C. free neutrons

D. all of these

Answer: B



Watch Video Solution

14. Match sticks are not made up of metal because

A. It would be heavy

B. more costly

C. burn our fingers

D. all of these.

Answer: C



Watch Video Solution

15. Which of the following was used by coal miners?

A. Match sticks

B. Candles

C. Davy's lamp

D. Kerosene lamp

Answer: C



Watch Video Solution

General Exercise

1. Define conduction, convection, and radiation.



[Watch Video Solution](#)

2. Explain the mechanism of conduction.



[Watch Video Solution](#)

3. What are good and bad conductors of heat?

Give examples.



[Watch Video Solution](#)

4. Mention two uses of good conductors of heat.



[Watch Video Solution](#)

5. Explain the formation of convection currents.



[Watch Video Solution](#)

6. What is "Green House Effect"?



[Watch Video Solution](#)

7. How can we use air as an insulator? Give examples.



[Watch Video Solution](#)

8. Explain why cooking utensils have metal bottom but plastic or ebonite handle.





[Watch Video Solution](#)

9. Explain why radiators of vehicles have bodies made of copper.



[Watch Video Solution](#)

10. How are land and sea breeze formed?



[View Text Solution](#)

11. Why are chimneys of factories kept high?



Watch Video Solution

12. Mention four uses of convection currents.



Watch Video Solution

13. "A good absorber is a good emitter" is explained by



Watch Video Solution

14. Mention five application of absorption and emission of heat.



View Text Solution

15. Write down a few properties of radiation.



View Text Solution

16. Why does a paper cup not burn when water is heated on a flame?



Watch Video Solution

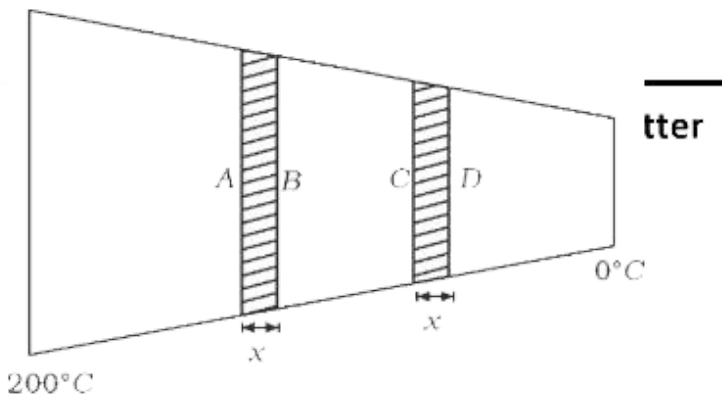
17. What are the differences between conduction, convection and radiation?



Watch Video Solution

Olympiad And Ntse Level Exercises

1. Two ends of a conducting rod of varying cross-section are maintained at $200^\circ C$ and $0^\circ C$ respectively. In steady state :



A. temperature differences across AB and CD are equal

B. temperature difference across AB is greater than that across CD

C. temperature difference across AB is less than that across CD

D. temperature difference may be equal or different depending upon thermal conductivity of the rod.

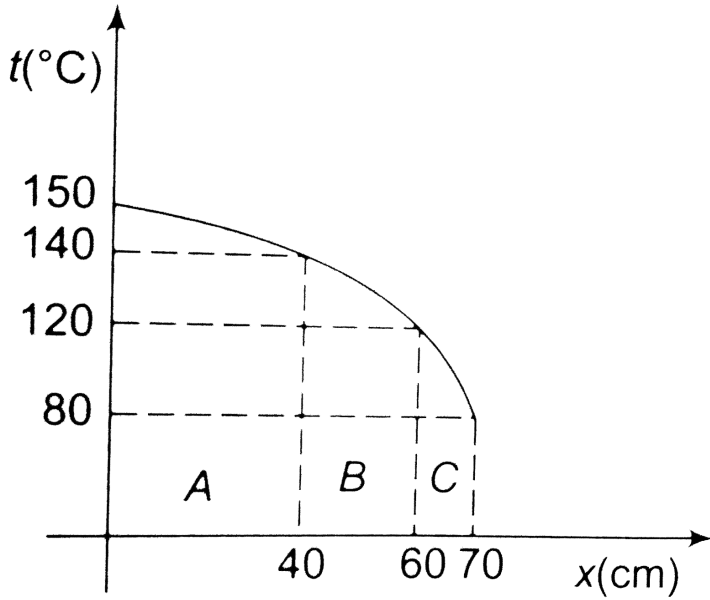
Answer: C



Watch Video Solution

2. The graph shown gives the temperature along an X axis that extends directly through a wall consisting of three layers A , B and C . The air temperature on one side of the wall is $150^{\circ}C$ and on the other side is $80^{\circ}C$. Thermal conduction through the wall is steady. out of the three layers A B and C thermal

conductivity is greatest of the layer



A. A

B. B

C. C

D. Thermal conductivity of A = Thermal conductivity of B.

Answer: A



Watch Video Solution

3. Assertion : While measuring the thermal conductivity of liquid experimentally, the upper layer is kept hot and the lower layer kept cold.

Reason : This avoids heating of liquid by convection.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A



Watch Video Solution

4. Heat travels through vaccum by

A. Conduction

B. Convection

C. Radiation

D. Both (A) and (B)

Answer: C



Watch Video Solution

5. We consider the radiation emitted by the human body. Which of the following statements is true

A. The radiation is emitted only during the day.

B. The radiation is emitted during the summers and absorbed during the winters.

C. The radiation emitted lies in the ultraviolet region and hence is not visible.

D. The radiation emitted is in the infrared region.

Answer: D



Watch Video Solution

6. When we rub our palms they get heated but to a maximum temperature because

- A. heat is absorbed by our palm
- B. heat is lost in the environment
- C. heat produced is stopped
- D. none of these

Answer: B



Watch Video Solution

7. In conduction process, the molecules of the solid pass the heat from one to another

A. without themselves moving from their positions.

B. themselves move from one place to another

C. without themselves moving from one place to another

D. none of these

Answer: A



Watch Video Solution

8. Solids are not heated by convection because

A. solid are not free to move from one place to another

B. molecules only vibrate about fixed position

C. both (A) and (B)

D. none of these

Answer: C



Watch Video Solution

9. A wooden spoon is dipped in a cup of ice cream. Its other end

A. becomes cold by the process of
radiation

B. becomes cold by the process of
conduction

C. does not become cold

D. becomes cold by the process of convection.

Answer: C



Watch Video Solution

10. Assertion : Temperature near the sea-coast are moderate.

Reason : Water has a high thermal conductivity.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B



Watch Video Solution

