

G9 IS (Physics)

G9 Physics Assignment 9 : Ways of heat transfer

Marks : _____ /25

Class G9 _____ No.() Name: _____

Date: _____

Part A Multiple-choice Questions (12 marks)

1. Which of the following substances conducts heat the fastest?

- A. Water
- B. Plastic
- C. Aluminium
- D. Polystyrene

2. Which of the following is suitable for making handles of cooking utensils?

- (1) Wood
- (2) Plastic
- (3) Copper

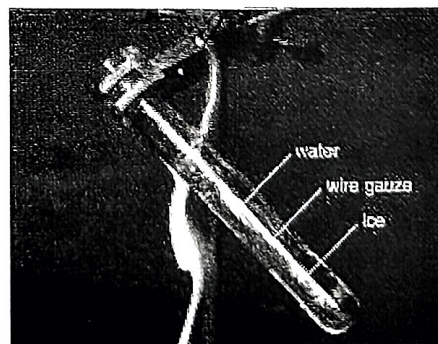
- A. (1) only
- B. (3) only
- C. (1) and (2) only
- D. (2) and (3) only

3. Which of the following is the best insulator of heat?

- A. Air
- B. Water
- C. Wood
- D. Vacuum

4. The experiment below shows that water is a poor conductor of heat. Which of the following statements is incorrect?

- A. Conduction occurs in glass.
- B. Conduction occurs in water.
- C. Ice is a poor radiator of heat.
- D. The wire gauze stops the heat transfer of the ice.



5. Convection needs a medium to transfer heat. The medium can be

- (1) a solid
- (2) a liquid
- (3) a gas

- A. (1) only
- B. (3) only
- C. (1) and (2) only
- D. (2) and (3) only

6. The sun transfer energy to the earth by

- (1) conduction.
- (2) convection
- (3) radiation

- A. (1) only
- B. (3) only
- C. (1) and (2) only
- D. (2) and (3) only

7. Which of the following statements is/are correct?

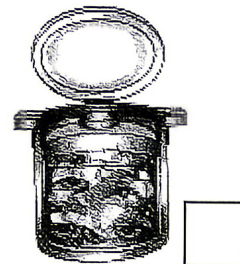
- (1) Infra-red radiation is the only radiation emitted by a hot object.
- (2) The hotter an object, the more energy it radiates.
- (3) Infra-red radiation is red in colour.

- A. (1) only
- B. (2) only
- C. (1) and (3) only
- D. (2) and (3) only

8. In a vacuum cooker, the vacuum is used to prevent heat transfer by

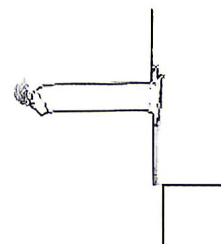
- (1) conduction
- (2) convection
- (3) radiation

- A. (1) and (2) only
- B. (1) and (3) only
- C. (2) and (3) only
- D. (1), (2) and (3)



9. In the figure, a burning candle is fixed with wax to a metal wall. After some time, the wax melts and the candle falls down. How is heat transferred to the wax?

- A. By radiation only
- B. By conduction only
- C. By conduction and radiation
- D. By conduction and convection



10. An object is placed in the sun. Which of the following changes **cannot** shorten the time needed for heating up the object?

- (1) Paint the object black.
- (2) Paint the object white.
- (3) Use a mirror to reflect sunlight to the object.

- A. (1) only
- B. (2) only
- C. (1) and (2) only
- D. (2) and (3) only

11. A hawker fries chestnuts with black sand in a large iron wok. Which of the following statements is **incorrect**?

- A. The iron wok is a good conductor of heat.
- B. Black sand is a good absorber and good radiator of heat.
- C. Black sand can enhance the conduction of heat from the wok.
- D. The chestnuts are heated by conduction, convection and radiation.

12. Which of the following statements about convection is **incorrect**?

- A. It is formed by the circulation of fluid.
- B. It cannot occur in solids.
- C. It can occur in a fluid of uniform temperature.
- D. It causes a candle flame to point upward.

Part B Structural Questions

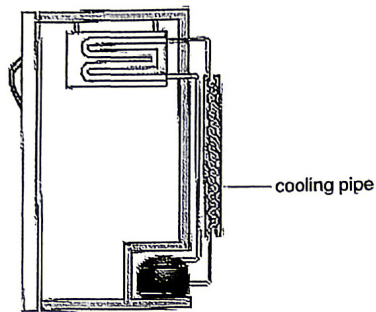
1. Why you fry vegetables, heat is transferred from the wok to the vegetables. The wok is made of iron. (2 marks)



(a) Name the main process through which heat is transferred from the wok to the vegetables.

(b) Suggest one way to increase the rate of heat transfer from the wok to the vegetables.

2. Cooling pipes can be found at the back of old-style refrigerators. (5 marks)



- (a) Why are the cooling pipes black in colour?

- (b) Describe briefly how the cooling pipes release energy to the surroundings.

- (c) Why should we leave some distance between the back of the refrigerator and the wall?

3. There is a cup of coffee. The cup is white in colour. (6 marks)



- (a) Is white a good colour for keeping the coffee hot? Explain briefly.

- (b) Suggest a material for making the cup in order to keep the content hot for a longer time.

- (c) If we want to reduce heat loss by convection, what can we do?

- (d) If some iced coffee is in the cup, is the colour suitable for keeping the coffee cool? Explain briefly.
