

Transfer of Thermal Energy

Question Paper

Course	CIE IGCSE Physics
Section	2. Thermal Physics
Topic	Transfer of Thermal Energy
Difficulty	Hard

Time Allowed 10

Score /6

Percentage /100

Question 1**Extended Tier Only**

Which of the following processes take place in a non-metal to allow the **conduction** of thermal energy?

	Transfer of electrons	Lattice vibrations	Transfer of nuclei
A	yes	yes	no
B	no	yes	no
C	yes	yes	yes
D	no	yes	yes

[1 mark]

Question 2

Two cars sit side by side, a black car and a white car. It is Summer.



During the day both cars absorb infrared radiation from the Sun, and during the night, both cars lose energy by emitting infrared radiation.

Which car heats up more quickly during the day, and which car cools down more quickly at night?

	Car which heats up more quickly during the day	Car which cools down more quickly at night
A	black	black
B	black	white
C	white	black
D	white	white

[1 mark]

Question 3

An astronaut aboard the International Space Station (ISS) lights a match.

Using ideas about convection, what does the flame look like?

- A. It burns upwards, like a normal flame.
- B. It burns like a normal flame, but is directed downwards, towards the Earth
- C. It burns like a normal flame, but is directed sideways, in the opposite direction to the direction the ISS is travelling.
- D. It burns in a sphere for a short time, before going out.

[1 mark]

Question 4

Of the following modes of thermal energy transfer, which one transfers energy at the greatest speed?

- A. Conduction
- B. Convection
- C. Radiation
- D. Evaporation

[1 mark]

Question 5

A student suggests some uses for the knowledge that black and white objects emit and absorb different amounts of infrared radiation.

Which of her suggestions is correct?

- A. Coffee mugs should be black to keep the coffee hot.
- B. Houses in hot countries should be painted white to keep the occupants cool.
- C. White clothing will help you cool down much faster.
- D. Solar heating panels should be white to heat the water more quickly.

[1 mark]

Question 6

A family goes on a picnic and they want their food to stay cold.

In order to achieve this, they put two ice packs with the picnic food in a hamper.

Where should both ice packs be placed in order to keep the food as cool as possible?

- A. Both at the top of the hamper
- B. One at the top of the hamper and one at the bottom
- C. Both at the bottom of the hamper
- D. On either side of the hamper

[1 mark]