

Heat transfer GCSE questions

**Q1.** Many people use a sleeping bag when they sleep in a tent. Sleeping bags, designed to keep a person warm, have a fibre filling.



(i) Complete the sentence by choosing the correct words from the box.

conduction    convection radiation
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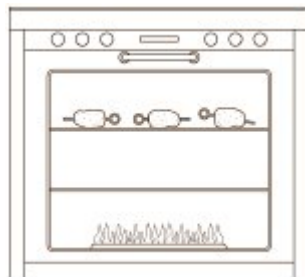
The fibre is designed to reduce heat transfer by ..... and .....

(ii) Explain why the fibre is good at reducing heat loss from a person sleeping in the bag.

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**(Total 3 marks)**

**Q2.** The diagram shows potatoes being baked in a gas oven. Each potato has a metal skewer pushed through it.



(a) Explain how heat is transferred by the process of convection from the gas flame at the bottom of the oven to the potatoes at the top of the oven.

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(3)

(b) The metal skewers help the potatoes to cook by transferring heat to the inside of the potatoes.

By what method is heat transferred through a metal skewer?

.....

(1)

(c) When the potatoes are taken from the oven, they start to cool down.

Suggest **one** factor that will affect how fast a potato cools down.

.....

(1)

(d) If the potatoes need to be kept hot, they may be wrapped in shiny aluminium foil.

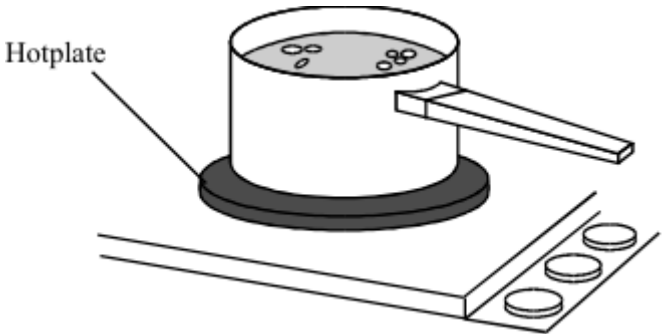
Why does this help to keep the potatoes hot?

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(1)

(Total 6 marks)

**Q3.** The drawing shows water being heated in a metal saucepan.



(a) Explain, in terms of the particles in the metal, how heat energy is transferred through the base of the saucepan.

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(2)

(b) Energy is transferred through the water by convection currents. Explain what happens to

cause a convection current in the water. The answer has been started for you.

As heat energy is transferred through the saucepan, the water particles at the bottom

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**(3)**

(c) Some energy is transferred from the hotplate to the air by *thermal radiation*. What is meant by *thermal radiation*?

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**(1)**

**(Total 6 marks)**