Conduction and Convection 5

Q:1 A gas fire transfers heat to a room in various ways.

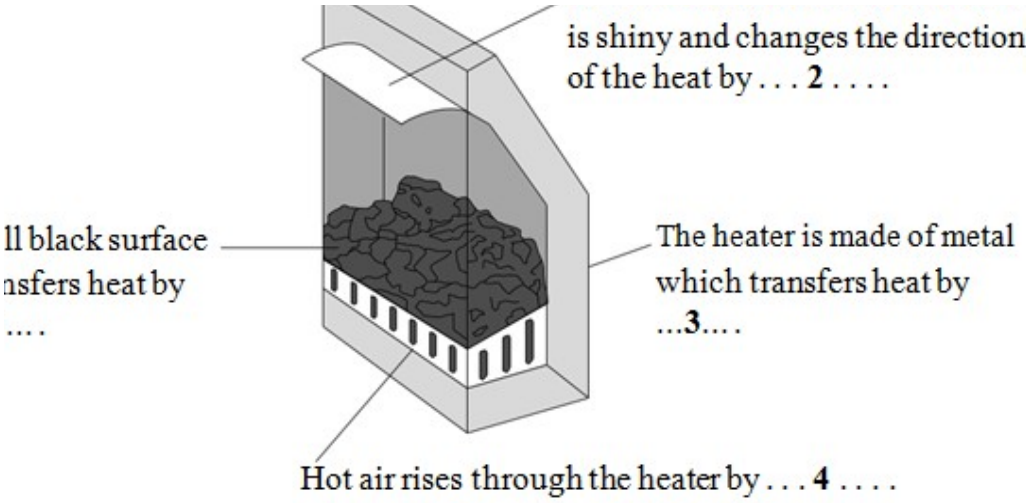
Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A. conduction

B. convection

C. radiation

D. reflection



Q:2 Thermal energy can be transferred in several ways.

Match words, **A**, **B**, **C** and **D**, with the numbers **1– 4** in the sentences.

A free electrons

B ions

C particles

D waves

Convection currents in liquids and gases are the result of expansion caused by . . . **1** . . . moving faster in hotter regions.

Thermal radiation is energy transfer by . . . **2** . . . .

The hotter a metal is, the greater the kinetic energy of the vibrating . . . **3** . . . in the metal structure.

Kinetic energy is transferred to cooler parts of the metal by . . . **4** . . . diffusing through it.

Q:3 Polystyrene cups are designed to keep drinks hot.

Match words, A, B, C and D, with the numbers 1–4 in the sentences.

A conduction

B convection

C insulation

D radiation

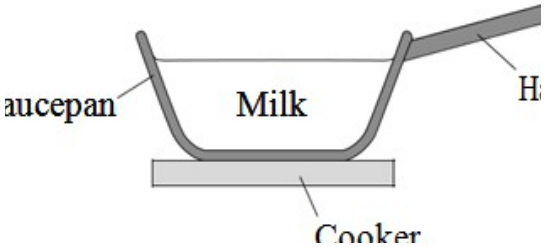
The white colour of the cup reduces heat loss by . . . 1 . . . .

The lid reduces heat loss by . . . 2 . . . .

Polystyrene is a material that reduces heat loss by . . . 3 . . . .

Making the cup from thicker polystyrene would improve the . . . 4 . . .

Q:4 The diagram shows a saucepan of hot milk on a cooker



Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A conduction

B convection

C insulation

D radiation

Heat is transferred from the cooker to the milk.

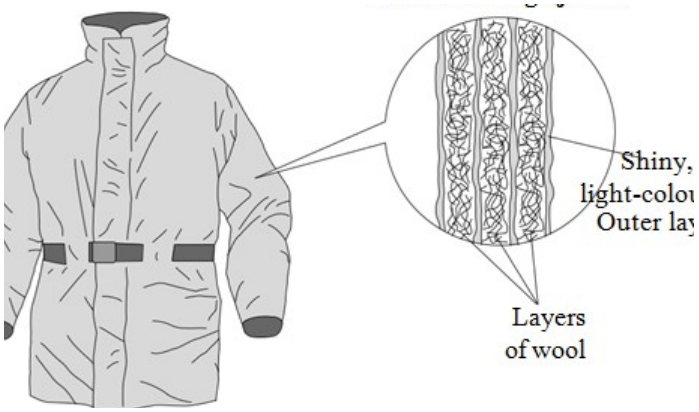
The heat is transferred from the cooker through the saucepan by . . . 1 . . . .

Heat is transferred through the milk by . . . 2 . . . .

The saucepan is shiny to reduce heat loss by . . . 3. . . .

The handle of the saucepan is made of plastic. The plastic acts as . . . 4 . . . .

Q:5 The diagram shows a jacket designed to keep Arctic explorers warm.



Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A conduction

B convection

C insulation

D radiation

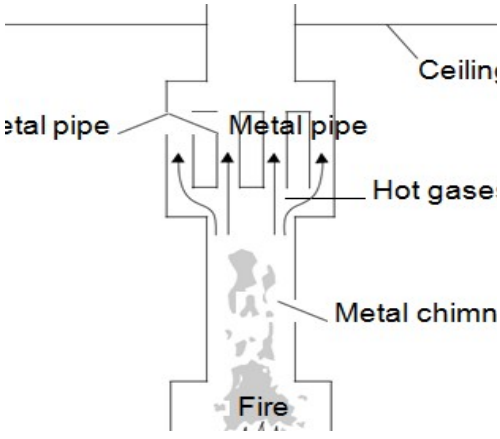
The shiny, light-coloured outer layer of the jacket reduces heat loss by . . . 1 . . . .

Using more layers of wool improves . . . 2 . . . .

The air trapped in the wool cannot rise, which reduces heat loss by . . . 3 . . . .

Heat is transferred through a solid material by . . . 4 . . . .

Q:6 The diagram shows a special design of chimney inside a house.



The metal chimney divides into four thinner pipes. These thinner pipes join up again just below the ceiling.

Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A conduction

B convection

C insulation

D radiation

The chimney is made of metal and this helps to transfer heat by . . . 1. . . .

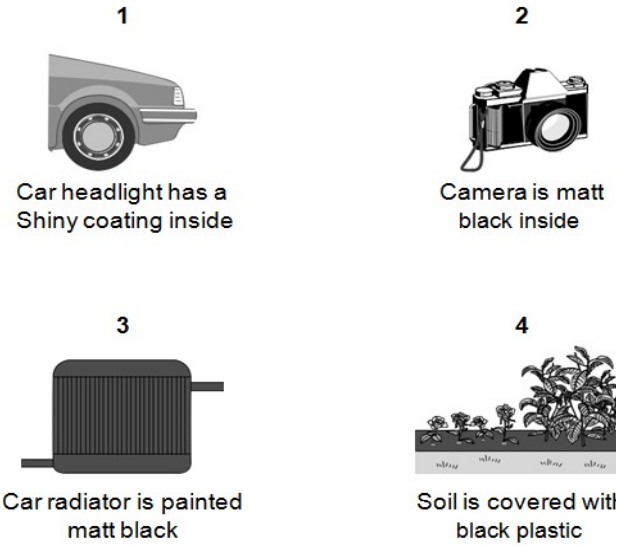
Hot gases from the fire rise up the chimney by . . . 2 . . . .

The chimney is split into four pipes to increase the surface area.

The large surface area increases the rate of heat transfer from the metal surface by . . . 3 . . . .

The transfer of heat to the room is helped because there is no . . . 4 . . . on the outside of the metal chimney.

Q:7 This question is about controlling some forms of radiation.



Match statements, A, B, C and D, with diagrams 1– 4.

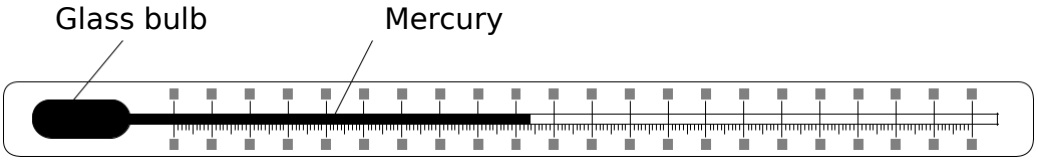
A is designed to increase the rate at which infra red radiation is absorbed

B is designed to increase the rate at which infra red radiation is emitted

C is designed to improve the ability to reflect visible light

D is designed to prevent the reflection of visible light

Q:8 The diagram shows a mercury-in-glass thermometer. It is used to measure the temperature at different places in a room.



Match words, A, B, C, and D, with the numbers 1– 4 in the sentences about thermal energy (heat).

A conductor

B convector

C insulator

D radiator

Mercury is a metal, so it is a good . . . 1 . . . .

The temperature may be different at different places in the room because air is a good . . . 2 . . . .

The shiny surface of the mercury makes it a poor . . . 3 . . . .

The glass bulb must be made very thin because glass is a good . . . 4 . . . .

Q:9 The drawing shows a skier.

Match words, A, B, C and D, with the numbers 1–4 in the sentences.

A conduction

B convection

C insulation

D radiation

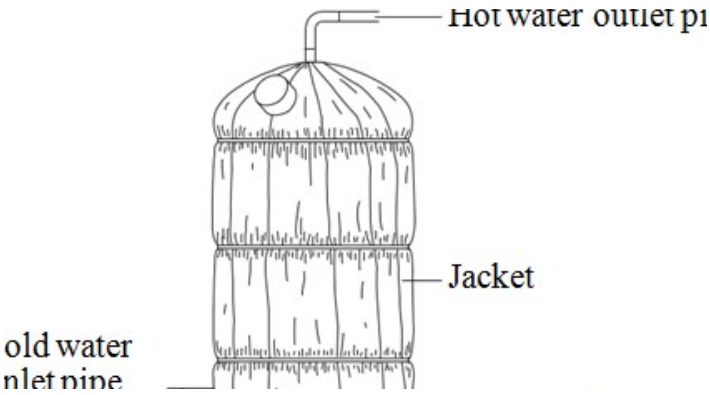
The skier's jacket is padded to provide good . . . 1 . . . .

His jacket has a shiny surface to reduce heat loss by . . . 2 . . . .

His gloves are made from wool to reduce heat loss from his hands by . . . 3 . . . .

When he breathes out, the warm air in his breath rises by . . . 4 . . . .

Q:10 The diagram shows a jacket fitted to a hot water tank.



Match words, A, B, C and D, with the numbers 1–4 in the sentences.

A conduction

B convection

C insulation

D radiation

Heat will travel through the copper wall of the tank by . . . 1 . . . .

The jacket helps to keep the water warm because the fibreglass inside the jacket provides . . . 2 . . . .

The hot water outlet is at the top of the tank because hot water will rise to the top by . . . 3 . . . .

Heat would be lost from the surface of the tank by . . . 4 . . . .

Q:11 This question is about heat transfer.

Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A conductors

B convectors

C radiators

D reflectors

Light, shiny surfaces are good . . . 1 . . . of heat.

Very hot objects are good . . . 2 . . . of heat.

Gases are good . . . 3 . . . of heat.

All metals are good . . . 4 . . . of heat.

Q:12 The drawing shows a firefighter putting out a bonfire. The firefighter wears thick, woollen clothing.

The clothing has a light-coloured, shiny surface.

Match words, A, B, C and D, with the numbers 1– 4 in the sentences.

A conduction

B insulation

C radiation

D reflection

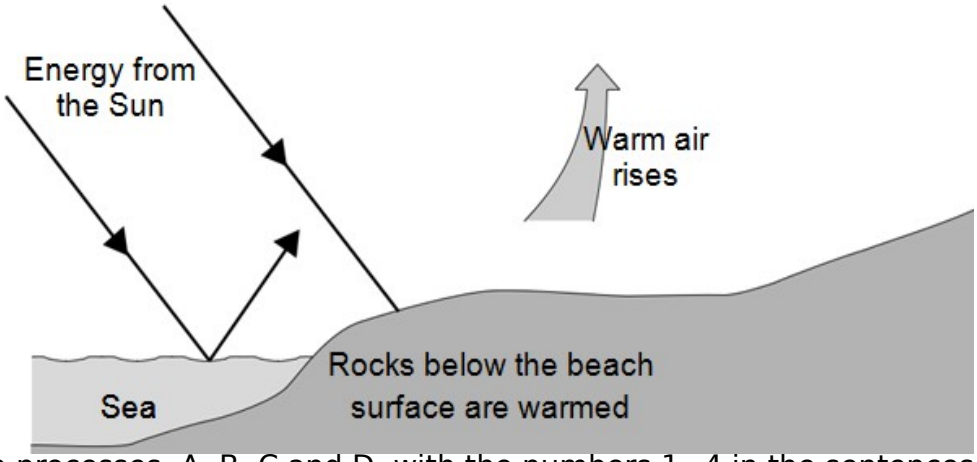
Heat is transferred from the fire to the firefighter's clothing by . . . 1 . . . .

The ground underneath the fire will get hot when heat is transferred to it by . . . 2 . . . .

The thick, woollen clothing provides good heat . . . 3 . . . .

The light-coloured, shiny surface of the clothing provides good . . . 4 . . . of infra red.

Q:13 The diagram shows some energy transfers at a warm sunny beach.



Match processes, A, B, C and D, with the numbers 1– 4 in the sentences.

A conduction

B convection

C radiation

D reflection

Energy from the Sun is transferred through space by . . . 1 . . . .

Rocks below the beach surface are warmed up by . . . 2 . . . .

Warm air rises from the beach by . . . 3 . . . .

Energy, not absorbed by the sea, leaves the surface of the sea by . . . 4 . . . .

TOTAL MARKS=52