Name:

1. Thermal energy is transferred through the glass windows of a house mainly by

A. conduction.

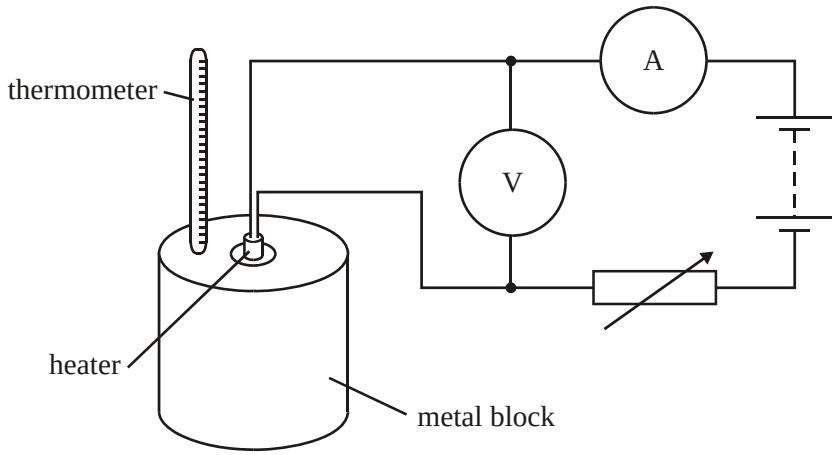
B. radiation.

C. conduction and convection.

D. radiation and convection.

(1)

2.



The specific heat capacity of a metal block of mass *m* is determined by placing a heating coil in its centre, as shown in the diagram above.

The block is heated for time *t* and the maximum temperature change recorded is *A6.* The ammeter and voltmeter readings during the heating are *I* and *V* respectively.

The specific heat capacity is best calculated using which **one** of the following expressions?

A. $c = \frac{VIt}{m\Delta\theta}$

B. $c = \frac{VI}{m\Delta\theta}$

C. $c = \frac{m\Delta\theta}{VI}$

D. $c = \frac{m\Delta\theta}{VIt}$

(1)

Name:

3. Which **one** of the following is **not** a source of error in the experiment?

A. Some thermal energy is retained in the heater.

B. The thermometer records the temperature at one point in the block.

C. Some thermal energy is lost from the variable resistor in the circuit.

D. The block is heated at its centre, rather than throughout its whole volume.

(1)

4. The kelvin temperature of an object is a measure of

A. the total energy of the molecules of the object.

B. the total kinetic energy of the molecules of the object.

C. the maximum energy of the molecules of the object.

D. the average kinetic energy of the molecules of the object.

(1)

5. The distance between the 0 °C and 100 °C marks on a mercury-in-glass thermometer is 20 cm. When the thermometer bulb is placed in a mixture of ice and salt, the mercury level is 4 cm below the 0 °C mark. The temperature of the mixture is

A. +20 °C.

B. +5 °C.

C. –5 °C.

D. –20 °C.

(1)

6. Thermal energy may be transferred

I. in a fluid as a result of density changes of the fluid.

II. in a non-metallic substance as a result of lattice vibrations.

Name:

Which of the following correctly identifies each of these energy transfers?

	Transfer I	Transfer II
A.	Convection	Convection
B.	Evaporation	Convection
C.	Convection	Conduction
D.	Evaporation	Conduction

(1)

7. During an experiment, a solid is heated from 285 K to 298 K.

Which **one** of the following gives the rise in temperature, in deg C, and the final temperature, in °C, of the solid?

	Rise in temperature in deg C	Final temperature in °C
A.	13	571
B.	13	25
C.	286	571
D.	286	25

(1)

8. A liquid is contained in a dish open to the atmosphere.

Which **one** of the following contains three factors that affect rate of evaporation of the liquid?

A.	Temperature of the liquid	Surface area	Specific latent heat of vaporisation
B.	Temperature of the liquid	Mass of liquid	Specific latent heat of vaporisation
C.	Surface area	Mass of liquid	Temperature of the liquid
D.	Mass of liquid	Surface area	Specific latent heat of vaporisation

(1)

Name:

9. The Kelvin temperature of an ideal gas is a measure of the

A. average speed of the molecules.

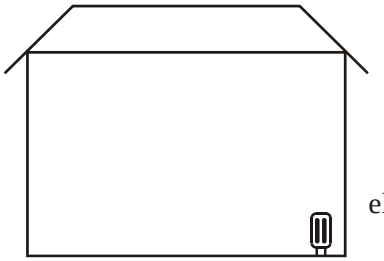
B. average momentum of the molecules.

C. average kinetic energy of the molecules.

D. average potential energy of the molecules.

(1)

10. The diagram below shows a room in a house fitted with an electric heater used to heat the room.



By which processes is the room heated when the heater is in operation?

A. Convection only

B. Radiation only

C. Radiation and convection

D. Radiation and conduction

(1)