

Thermal Properties & Temperature

Question Paper

Course	CIE IGCSE Physics
Section	2. Thermal Physics
Topic	Thermal Properties & Temperature
Difficulty	Hard

Time Allowed 10

Score /7

Percentage /100

Question 1

Which of the following statements defines the **specific heat capacity** of a substance?

- A. The energy required to raise the temperature of 1 kg of a substance by 1°C .
- B. The energy per $^{\circ}\text{C}$ required to raise the temperature of a substance.
- C. The increase in length of 1 kg of a substance when its temperature is increased by 1°C .
- D. The energy required to change 1 kg of a substance from a liquid to a gas.

[1 mark]

Question 2

Drinks are often cooled by putting ice cubes into them.

A delicious cocktail is initially at a temperature of 12°C , when a few ice cubes are put into the drink.



After some time has passed, some of the ice has melted, and the temperature of the cocktail has dropped to 7°C .

What is the temperature of the remaining, unmelted ice?

- A. 7°C
- B. 0°C
- C. 5°C
- D. 2°C

[1 mark]

Question 3

Extended Tier Only

A pan, containing 0.750 kg of water which is initially at 13 °C is heated by an electric hob. 35 kJ of thermal energy is put into the water and its temperature rises.

You can assume that all the energy supplied by the hob goes into raising the temperature of the water.

The specific heat capacity of water is 4200 J/kg °C.

To the nearest °C, what is the final temperature of the water?

- A. 24 °C
- B. 13 °C
- C. 19 °C
- D. 11 °C

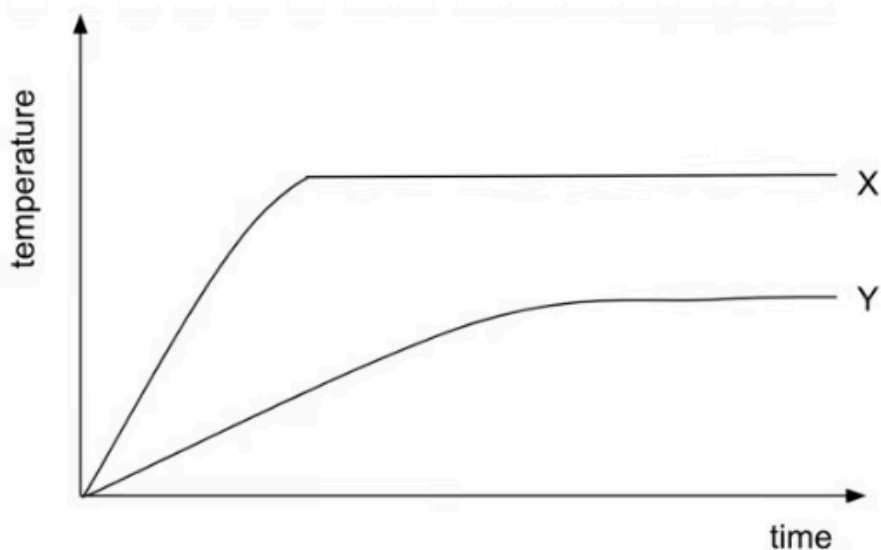
[1 mark]

Question 4**Extended Tier Only**

Two beakers, X and Y, containing different liquids are heated by a student.

Both beakers contain the same mass of liquid, and are heated using the same heater set to the same power.

The graph shows how the temperature of each liquid changes with time.



What conclusion can be correctly drawn from the graph?

- A. X has a higher melting point than Y.
- B. Y boils sooner than X.
- C. X has a lower specific heat capacity than Y.
- D. Y has a higher boiling point than X.

[1 mark]

Question 5

Extended Tier Only

Two metal cylinders, P and Q, are heated using an electric heater. Both of the cylinders receive exactly the same amount of thermal energy.

The temperature of P increases by a smaller amount than the temperature of Q.

What conclusion can be drawn?

- A. P is a better thermal conductor.
- B. Q is a better thermal conductor.
- C. P has a higher thermal capacity.
- D. Q has a higher thermal capacity.

[1 mark]

Question 6**Extended Tier Only**

A student takes two blocks, block 1 and block 2, of different metals and heats them until the temperature of both has risen by 20°C .

She then leaves both blocks on the desk to cool.

Block 2 has a greater thermal capacity than block 1.

Which of the blocks loses more energy as it cools to room temperature, and which of the blocks required more energy to raise its temperature by 20°C ?

	Lost more energy when cooling	Required more energy to heat up.
A	block 1	block 1
B	block 1	block 2
C	block 2	block 1
D	block 2	block 2

[1 mark]

Question 7**Extended Tier Only**

In a children's experiment, a saucer of water is left outside to evaporate.

Which row shows weather conditions that will each cause the rate of evaporation from the saucer to increase?

	Temperature	Wind speed
A	warm	windy
B	warm	still
C	cool	windy
D	cool	still

[1 mark]