Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 14_Particle model

Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

Figure 19 shows a small piece of copper about 3 cm high.

Figure 19

A student wants to determine the density of copper.

The student uses a balance to measure the mass of the piece of copper.

(i) Explain how the student could measure the volume of the piece of copper.

(3)

.....

.....

.....

.....

.....

.....

(ii) The mass of the piece of copper is 0.058 kg.

The volume of the piece of copper is 6.5×10^{-6} m^3.
Calculate the density of copper.

(2)

density of copper = ... kg/m^3

(Total for question = 5 marks)

Q2.

An object has a mass of 7.22×10^{-2} kg and a volume of 2.69×10^{-5} m^3.

Calculate the density, ρ, of the object.

Use the equation

$$\rho = \frac{m}{V}$$

(3)

State the unit.

density =..... unit .....

(Total for question = 3 marks)

Q3.

(i) Figure 11 shows an electric kettle.

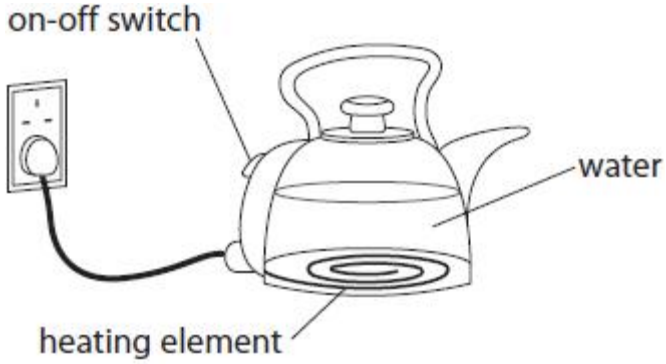

Figure 11

The kettle contains 1.5 kg of water.
The kettle is switched on.
Calculate the energy needed to raise the temperature of the water by 50 °C.
Specific heat capacity of water = 4200 J/kg °C
Use the equation

$$\Delta Q = m \times c \times \Delta\theta$$

(2)

energy needed = ... J

(ii) The amount of energy, *E*, needed to bring the water to boiling point is 670 000 J.

The kettle has a power of 3500 W.
Calculate the time, *t*, it takes to bring the water to boiling point.
Use the equation

$$P = \frac{E}{t}$$

(3)

time to bring the water to boiling point = ... s

(Total for question = 5 marks)

Q4.

Figure 14 shows a saucepan of milk being heated on an electric cooker.

© Por Fabian Ponce Garcia/Shutterstock

Figure 14

Figure 15 is a table of data about the milk being heated.

mass of milk	0.82 kg
starting temperature of milk	10 °C
final temperature of milk	40 °C
change in thermal energy of milk	96 000 J

Figure 15

(i) Using data from the table in Figure 15, calculate the increase in temperature of the milk.

(1)

increase in temperature = ... °C

(ii) Using data from the table in Figure 15, calculate the specific heat capacity of the milk.

Use the equation

$$\text{specific heat capacity} = \frac{\text{change in thermal energy}}{\text{mass} \times \text{increase in temperature}}$$

(2)

specific heat capacity = ... J/kg °C

(Total for question = 3 marks)

Q5.

Figure 20 shows the dimensions of a solid block of concrete.

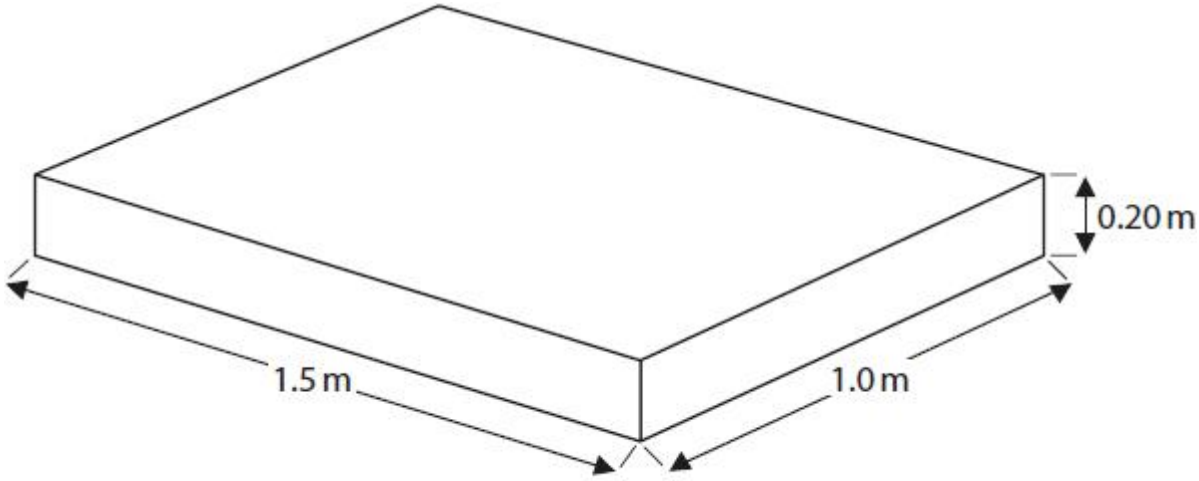

Figure 20

Density of concrete, ρ, = 2100 kg / m^3.

Calculate the mass of the concrete block.

Use the equation:

$$m = \rho \times V$$

(3)

mass of concrete block = ... kg

(Total for question = 3 marks)