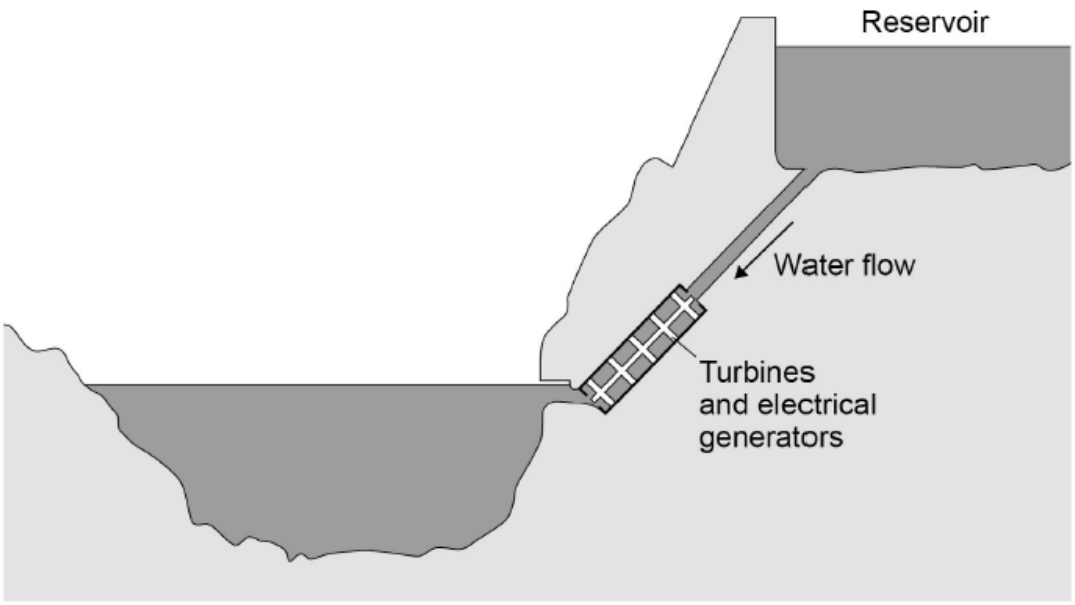
AQA - Changes of state and particle model – GCSE Physics

1. May/2020/Paper_1F/No.10

1 0 **Figure 14** shows a hydroelectric power station.

Figure 14



Electricity is generated when water from the reservoir flows through the turbines.

1 0 . 1 Write down the equation which links density (ρ), mass (m) and volume (V).

[1 mark]

_____

1 0 . 2 The reservoir stores 6 500 000 m^3 of water.

The density of the water is 998 kg/m^3.

Calculate the mass of water in the reservoir.

Give your answer in standard form.

[4 marks]

Mass (in standard form) = _____ kg

1 0 . 3 Write down the equation which links energy transferred (E), power (P) and time (t).

[1 mark]

1 0 . 4 The electrical generators can provide 1.5×10^9 W of power for a maximum of 5 hours.

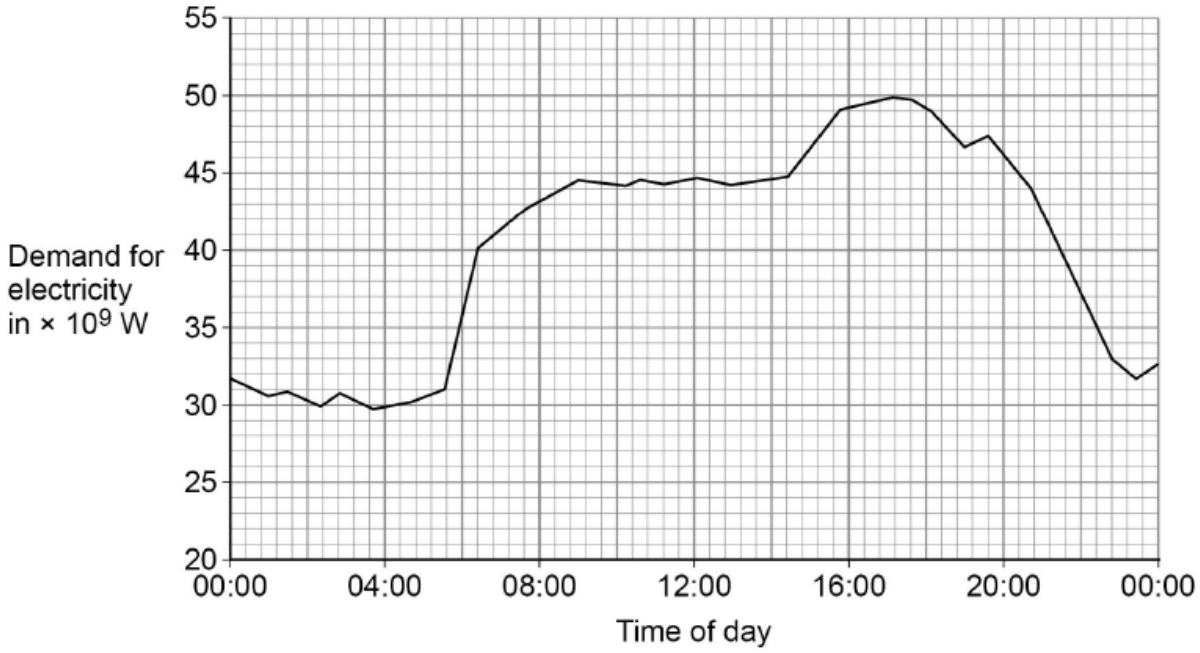
Calculate the maximum energy that can be transferred by the electrical generators.

[3 marks]

Energy transferred = _____ J

1 0 . 5 **Figure 15** shows how the UK demand for electricity increases and decreases during one day.

Figure 15



The hydroelectric power station in **Figure 14** can provide 1.5×10^9 W of power for a maximum of 5 hours.

Give **two** reasons why this hydroelectric power station is not able to meet the increase in demand shown between 04:00 and 16:00 in **Figure 15**.

[2 marks]

1 _____

_____

_____

2 _____

_____

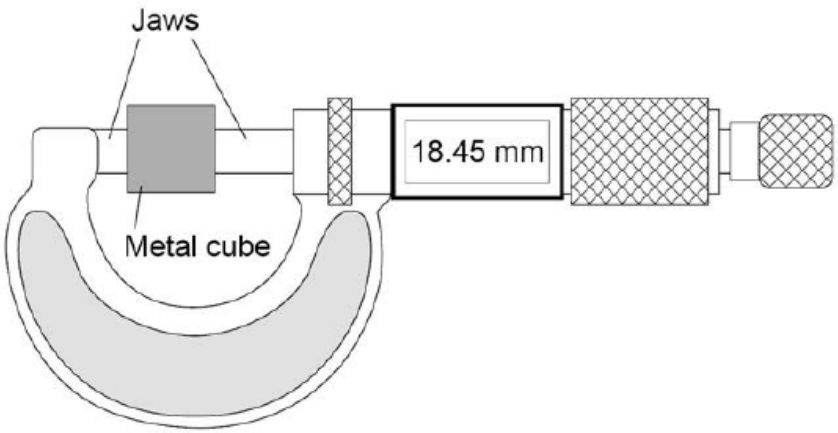
_____

2. May/2019/Paper_1H/No.9

0 9 A student measured the width of a solid metal cube using a digital micrometer.

Figure 11 shows the micrometer.

Figure 11



0 9 . 1 The resolution of the micrometer is 0.01 mm

The student could have used a metre rule to measure the width of the cube.

Explain how using a metre rule would have affected the accuracy of the student's measurement of width.

[2 marks]

0 9 . 2 The mass of the metal cube was measured using a top pan balance.

The balance had a zero error.

Explain how the zero error may be corrected after readings had been taken from the balance.

[2 marks]

0 9 . 3 The width of the cube was 18.45 mm. The density of the cube was 8.0×10^3 kg/m^3

Calculate the mass of the cube.

[5 marks]

Mass = _____ kg