

IGCSE Physics 0625 Paper 5 Practice Paper

(Core)

Total: 40 marks · 1 hour 15 minutes · 4 questions · 20 parts

Question 1 · Extension of a spring and load [10]

- (a) Name the instrument used to measure the natural length of the spring and state how the scale should be read to reduce error. [1]
- (b) The natural length is 12.0 cm. With loads of 1.0, 2.0, 3.0 and 4.0 N the lengths are 14.0, 16.0, 18.0 and 20.0 cm. State the four extensions in cm. [2]
- (c) Use the 4.0 N reading to calculate the spring constant k in N/m. [3]
- (d) Assuming the elastic limit is not exceeded, predict the extension and the total length with a 5.0 N load. [2]
- (e) State two precautions that would improve the accuracy of this experiment. [2]

Question 2 · Period of a simple pendulum [10]

- (a) Name the instrument used to time 20 oscillations and state the smallest reading it gives. [1]
- (b) With a length of 0.800 m, 20 oscillations take 36.0 s. Calculate the period T and the frequency f . [2]
- (c) Use $T = 2\pi\sqrt{l/g}$ and the data above to calculate the acceleration of free fall g . [3]
- (d) With a length of 0.600 m, 20 oscillations take 31.0 s. State the new period and describe how the period changes when the length is reduced. [2]
- (e) State two ways of making the timing more reliable. [2]

Question 3 · Voltage-current relationship of a resistor [10]

- (a) State how the voltmeter should be connected across the resistor. [1]
- (b) When the current is 0.40 A the voltage is 4.8 V. Calculate the resistance. [2]
- (c) The other readings are 0.20 A at 2.4 V, 0.30 A at 3.6 V and 0.50 A at 6.0 V. Show that the resistor is ohmic. [3]

- (d) What power is dissipated by the resistor at 0.50 A? [2]
- (e) Why should the circuit be switched off between readings? [2]

Question 4 · Density by displacement [10]

- (a) Name the instrument used to measure the mass of the metal block. [1]
- (b) The water level in the measuring cylinder rises from 50.0 cm³ to 60.0 cm³. Calculate the volume of the block. [2]
- (c) The block has a mass of 78.0 g. Calculate its density in g/cm³ and in kg/m³. [3]
- (d) If the cylinder can only be read to the nearest 1 cm³, calculate the maximum percentage error in the volume and state how it affects the density. [2]
- (e) State two precautions that reduce the error in this experiment. [2]