Section A

Answer **all** the questions in this section in the spaces provided.

1 **(a)** Length, mass and amount of substance are all SI base quantities.

(i) State **two** other SI base quantities.

1. ……...

2. ……...
[2]

(ii) State **one** derived quantity.

…… [1]

(b) The acceleration of free fall g may be determined from an oscillating pendulum using the equation

$$g = \frac{4\pi^2 l}{T^2}$$

where l is the length of the pendulum and T is the period of oscillation.

In an experiment, the measured values for an oscillating pendulum are

l = 1.50 m ± 2%
and T = 2.48 s ± 3%.

(i) Determine the percentage uncertainty in g.

percentage uncertainty = …… [1]

(ii) Calculate g together with its uncertainty.

g = …….. ± …… m s^{-2} [3]

[Total 7]

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