1 (a) Length, mass and temperature are all SI base quantities.

State **two** other SI base quantities.

1. ....

2. ....

[2]

(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) Calculate the acceleration of free fall g.

g = ... m s^{-2} [1]

(ii) Determine the percentage uncertainty in g.

percentage uncertainty = ... % [2]

(iii) your answers in **(b)(i)** and **(b)(ii)** to determine the absolute uncertainty of the calculated value of g.

absolute uncertainty = ... m s^{-2} [1]

[Total: 6]