

- (d) The period, T , of one oscillation is given by the equation:

$$T^2 = \left(\frac{4\pi^2}{g} \right) l$$

where g is the acceleration due to gravity.

- (i) By using your answer to part (c)(iii) and comparing the above equation with that of a straight line ($y = mx + c$), calculate a value for g . [3]

- *Equating gradient to $4\pi^2/g$ (1) (ecf on axis orientation)*
- *Re-arrange equation to give $g = 4\pi^2$ gradient (1) [can be awarded by implication if answer correct]*
- *Calculation correct (No unit penalty) (1)
(ecf on incorrect value of gradient from (c) (iii))*

- (ii) The accepted value for acceleration due to gravity, $g = 9.81 \text{ ms}^{-2}$ and your answer can be considered accurate if it is within 5% of this value. Comment on your answer. [2]

Calculation correct for 5% of 9.81 [0.49] ms^{-2} (1)

Suitable comment (allow ecf if calculation incorrect) (1)