

- (c) (i) Determine the maximum and minimum gradients for your graph. [2]
- *Suitable triangles shown on graph [or equiv, e.g. 2 points shown on each line] with  $h$  separation  $\geq 1m$  (1)*
  - *Both calculations correct [no s.f. penalty] (1)*
- (ii) Calculate the mean (average) gradient and its **percentage** uncertainty. [2]
- *Mean gradient correctly calculated, e.c.f. (1)*  
*[No s.f. penalty. Units not required]*
  - *% uncertainty correct, e.c.f. (1) [ $= \frac{\text{max grad} - \text{min grad}}{\text{mean grad}} \times 100$ ]*
- (iii) Use your answer for the mean gradient to determine a value for the acceleration due to gravity,  $g$ . Quote your answer to the correct number of significant figures giving its absolute uncertainty. [4]
- *$g$  calculated correctly (e.c.f.) [from  $2 \times \text{mean gradient}$ ] (1)*  
*[No s.f. or unit penalty]*
  - *Absolute uncertainty correct and express to 1 s.f. (1)*
  - *$g$  quoted to precision consistent with uncertainty (1)*  
*[e.g. if uncertainty s.f. is in 1<sup>st</sup> decimal place,  $g$  quoted to 1 d.p.]*
  - *Unit for  $g$  given as  $ms^{-2}$  (1) [Accept  $Nkg^{-1}$ ]*  
*[Accept  $cms^{-2}$  if appropriate]*