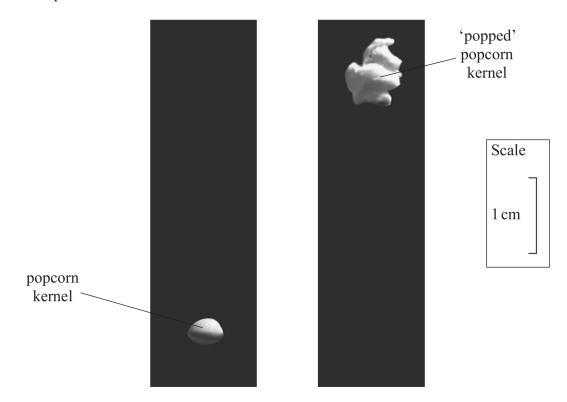
16 Popcorn kernels contain water. When heated, the water turns to steam. The kernel 'pops' and moves upwards.



- (a) The photographs above show a popcorn kernel just before popping and at the maximum height after popping. The time between the two photographs was 83 ms.
 - (i) Determine the maximum height after popping.

(2)

Maximum height =

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(ii) Calculate the initial speed of the 'popped' popcorn kernel.					
Initial speed =					
(b) The average water content in a popcorn kernel is 14% of the total mass of the kernel.					
A kernel is heated until it pops. Steam is ejected downwards, and the popped kernel moves upwards with an initial speed of $1.5\mathrm{ms^{-1}}$.					
Calculate the speed at which the steam is ejected.					
total mass of unpopped kernel = $0.11 \mathrm{g}$	(4)				
	(4)				
Speed =					
(Total for Question 16 = 9 marks)					