Question Number	Answer		Mark
16a	At least three parallel vertical lines touching the plates at top and bottom	(1)	**3**
	Lines equi-spaced	(1)	
	Arrow on at least one line pointing down	(1)	
	(Ignore whatever is drawn at left and right edges of the plates)		
16bi	Use of $E = V/d$	(1)	**3**
	Use of $E = F/Q$	(1)	
	$F = 2.63 \times 10^{-13}$ (N) (more than 2 s.f.)	(1)	
	Example of calculation $F = 1.6 \times 10^{-19}\text{C} \times \frac{10500\ \text{V}}{0.0064\ \text{m}}$		
	$F = 2.625 \times 10^{-13}$ N		
16bii	Use of $\Delta W = F\Delta s$	(1)	**2**
	$\Delta W = 5.3 \times 10^{-20}$ J so less than ionisation energy so does not cause further ionisation **Or** required force = 1.95×10^{-12} N, which is greater than 2.6×10^{-13} N, so does not **Or** required distance = 1.5×10^{-6} m, which is greater than 0.2×10^{-6} m, so does not	(1)	
	Example of calculation		
	$\Delta W = 2.6 \times 10^{-13}$ N $\times 0.2 \times 10^{-6}$ m $= 5.26 \times 10^{-20}$ J		
16c	muons travelling close to speed of light	(1)	**3**
	relativistic effect increases particle lifetime (for observer)	(1)	
	so travels further than normally expected (before decaying)	(1)	
	Total for question 16		**11**