Question Number	Answer		Mark
18(a)	Light directed through one polarising filter	(1)	
	Filter is rotated until no light passes through **Or** filter is rotated and light changes intensity	(1)	2
	(Answers involving use of more than one polarising filter can only potentially score MP2)		
18(b)(i)	Distance between (adjacent) slits **Or** grating spacing **Or** line spacing **Or** slit spacing **Or** $\dfrac{1}{lines\ per\ m}$	(1)	1
18(b)(ii)	Use of $\tan\theta = \dfrac{\text{distance from central maximum to first order}}{\text{grating to screen distance}}$	(1)	
	Use of $n\lambda = d\sin\theta$	(1)	
	number of lines per mm = 950	(1)	3
	(MP1 – award if $\sin\theta$ calculated from Pythagoras) (Use of Young's Double Slit equation scores 0)		
	Example of calculation $\tan\theta = 1.61\text{m} / 2.74\text{m}, \theta = 30.4°$ $d = n\lambda / \sin\theta = (1)(532 \times 10^{-9}\text{ m}) / \sin (30.4°)$ $d = 1.05 \times 10^{-6}\text{ m}$ number of lines per m = $1 / 1.05 \times 10^{-6}\text{ m} = 9.52 \times 10^{5}\text{ m}^{-1}$. number of lines per mm = 952		
18(b)(iii)	Measuring distance from from first order maxima on one side of the central maxima to the first order maxima on the other side	(1)	
	Increasing distance from diffraction grating to screen	(1)	
	It would decrease <u>percentage</u> uncertainty	(1)	3
	(MP3 is dependent upon awarding MP1 or MP2)		
	Total for Question 18		9