

Question	Answer	Marks
5(a)	constant phase difference (between the waves)	B1
5(b)(i)	path difference = 1.5×660 = 990 nm	A1
5(b)(ii)	phase difference = $360^\circ \times 1.5$ = 540°	A1
5(c)	$\lambda = ax / D$	C1
	$x = (660 \times 10^{-9} \times 1.8) / 0.44 \times 10^{-3}$	C1
	= 2.7×10^{-3} m	A1
5(d)	bright fringes are brighter	B1
	no change to dark fringes	B1
	no change to (fringe) separation / (fringe) spacing	B1
5(e)	(blue light has) shorter wavelength	M1
	(so) decrease (slit) separation	A1

Question	Answer	Marks
5(a)	(they travel in) opposite directions	B1
5(b)(i)	straight line from A to B, labelled P	B1
	line that is 'mirror image' of given line, labelled Q	B1
5(b)(ii)	$\lambda = 0.80 / 2$ (= 0.40 m)	C1
	$v = \lambda / T$ or $v = f\lambda$ and $f = 1 / T$	C1
	$v = 0.40 / 0.016$ or 62.5×0.40 = 25 m s^{-1}	A1
5(c)(i)	$I_1 / I_0 = \cos^2 30^\circ$	C1
	= 0.75	A1
5(c)(ii)	$I_2 / I_1 = \cos^2 60^\circ$	C1
	$I_2 / I_0 = \cos^2 30^\circ \times \cos^2 60^\circ$ or $0.75 \times \cos^2 60^\circ$	
	= 0.19	A1