

General properties of waves

Mark scheme

1.	(a)	(i)	3	1	
		(ii)	1	1	
			<i>accept a definition of frequency ignore units</i>		
		(iii)	hertz	1	
	(b)	straight line in correct direction		1	
		<i>judge by eye (from 'a' of waves to 's' of across) ignore arrow</i>			
		<i>accept equal angles shown on waves</i>			
	(c)	gets smaller		1	
					[5]
2.	(a)	radio - 1500		4	
		ultra violet $3 \times 10^{-8}$			
		visible - $5 \times 10^{-7}$			
		X-rays - $1 \times 10^{-11}$			
	(b)	$1 \times 10^{10}$ Hz $10^{10}$ HzOK		4	
		<i>for 4 marks</i>			
		else $1 \times 10^{10}$			
		<i>for 3 marks</i>			
		else $3 \times 10^8/0.03$			
		<i>for 2 marks</i>			
		else $v = \text{frequency} \times \text{wavelength}$ or $3 \times 10^8 = 0.03f$			
		any answer with unit Hz scores 1, 2 or 3			
		<i>for 1 mark</i>			
					[8]
3.	(a)	any two successive peaks labelled <b>W</b>		1	
		<i>accept any 2 points on same part of adjacent waves correct by eye</i>			
		half 'height' of wave labelled <b>A</b>		1	
		<i>correct by eye N.B. at least one of the answers must be labelled</i>			
	(b)	0.2		2	
		<i>correct answer with no working = 2</i>			
		<i>allow 1 mark for <math>s = f \times w</math> or correct working i.e., <math>2 \times 0.1</math></i>			
		<i>N.B. correct answer from incorrectly recalled relationship = 0</i>			
		m/s (unit)		1	
		<i>independent mark</i>			
		<i>do not allow mps or mHz</i>			
					[5]