Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Waves

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Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	recall **and** rearrangement (1) $\lambda = \frac{v}{f}$ evaluation (1) 3.08 (m) (so) length of aerial = 1.54 m (1) check working $\frac{3\times10^8}{2} = 1.5 \times 10^8$ gets only 1 mark for ecf	 $\frac{3.0\ (\times 10^8)}{97.4\ (\times 10^6)}$ accept 3.1 (m) award 1 mark for wavelength that rounds to 3.1 to any other power of 10 independent mark. allow ECF from candidate's wavelength accept 1.5 (m) award 2 marks for 1.5 to any other power of 10 award full marks for the correct answer without working Allow 1.46 rounded to 1.5 for 1 mark only if it is ecf from mp2	**(3)**

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Q2.

Question Number	Answer	Additional guidance	Mark
	recall and substitution (1) (v =) 0.25 x 1.5 evaluation (1) 0.38 (m/s)	 accept 0.375 or 0.37 (m/s) accept 37.5, 37 or 38 for 1 mark only award full marks for the correct answer without working	**(2)**

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Q3.

Question number	Answer	Additional guidance	Mark
CS1	uses data taken from x axis (1) 28(cm) (1)	award full marks for correct answer without working	(2) AO3

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Q4.

Question Number	Answer	Additional guidance	Mark
(i)	selection and substitution (1) $3(.00) \times 10^8 = 2.45 (\times 10^9) \times \lambda$ rearrangement (1) $(\lambda =) \frac{3(.00)\times 10^8}{2.45 (\times 10^9)}$ evaluation (1) 0.12 (m)	allow substitution and rearrangement in either order $2.45 \left(\times 10^9\right) = \frac{3(.00) \times 10^8}{\lambda}$ $\lambda = \frac{v}{f}$ accept 0.122(m) power of ten error gains 2 marks award full marks for the correct answer without working	**(3)** **AO2**

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Question Number	Answer	Additional guidance	Mark
(ii)	selection and substitution (1) $(0.)55=\frac{42\ 000}{\text{total energy supplied (to device)}}$ rearrangement (1) $(\text{total energy supplied to device}=)\frac{42\ 000}{(0.)55}$ evaluation (1) 76 000(J)	allow substitution and rearrangement in either order $(0.)55=\frac{42\ 000}{x}$ accept any value that rounds to 76 000(J) 760/764/763(J) gains 2 marks any other power of ten error gains 1 mark award full marks for the correct answer without working	**(3)** **AO2**

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Q5.

Question number	Answer	Acceptable	Mark
	substitution (1) 1530 = (1.2/1000) x wavelength rearrangement (1) wavelength = 1530 / (1.2/1000) evaluation (1) = 1.275 (m)	2 marks for 1275m (incorrect conversion into Hz) full marks will be awarded for correct numerical answer without working	**(3)**

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Q6.

Question number	Answer	Additional guidance	Marks
(i)	Accept any answer between 502 and 510 nm inclusive		1

Question number	Answer	Additional guidance	Marks
(ii)	Substitution (1) frequency = $3.0 \times 10^{8} / (505 \times 10^{-9})$ Evaluation (1) $=5.9 \times 10^{14}$ Unit mark (1) Hz	 accept answers in range 5.88×10^{14} to 5.98×10^{14} Accept hertz / s^{-1}	(3)

Question number	Answer	Additional guidance	Marks
(iii)	An answer that combines three points of interpretation/evaluation to provide a logical description (3) Yellow or green or blue detected/seen the best/most sensitive to / highest relative sensitivity (1) Red or orange not detected/not seen (so well)/least sensitive to/lowest relative sensitivity (1) violet or indigo not detected/not seen (so well)/less sensitive to (1)	 about 500 nm more than 550 nm less than 450 nm 2 max if only wavelength instead of colours	(3)

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