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

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

	Answer	Acceptable answers	Mark
(ai)	A		**(1)**
(aii)	A description linking plates move / slip / separate (relative to each other) (1) sudden (release of energy) (1)	plate rubs against each other friction between plates plate boundary shifts jerk / jolt	**(2)**
(bi)	substitution (1) 0.65 = 80 / t transposition (1) t = 80 / 0.65 (123 seconds)	transposition and substitution can be in either order . Allow reverse calculations eg speed = 80/120 (1) = 0.67 (about 0.65) (1) or distance = 0.65 × 120 (1) = 78 km (about 80) (1).	**(2)**
(bii)	A description linking any three detection of arrival of P and S waves (1) measurement of difference in arrival times (1) calculation of distance (from epicentre to station) (1) triangulation/using three / several stations (1)	Reward suitable labelled diagram	**(3)**
(b)(iii)	A suggestion including any two of the following Infrasound (1) some animals can hear waves below human frequency	Some animals have greater audio / tactile sensitivity than humans	**(2)**

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	range / 20 Hz (1) they could hear P waves arriving before the (stronger) S waves arrive (1)		

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Q2.

Question	Answer	Additional guidance	Mark
(i)	An explanation linking UVC/it has the smallest wavelength / highest frequency/ highest energy/most ionising (1) (it doesn't cause harm to people because) 100% absorbed by the Earth's atmosphere/no UVC reaches the Earth's surface/people (1)	allow shortest wavelength allow smaller for smallest / higher for highest / more for most	**2 AO3.2**

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Question	Answer	Additional guidance	Mark
(ii)	wavelength 280(nm) (1) substitution and rearrangement (1) $f = \frac{3.0 \times 10^{8}}{280 (\times 10^{-9})}$ evaluation (1) 1.07×10^{15} (Hz)	allow 2.8 to any power of ten accept numbers that round up to 1.1 x 10^{15} (Hz) award 2 marks for values that round up to 1.1 to any other power of ten if no other mark scored allow substitution and rearrangement using an incorrect wavelength for 1 mark award full marks for correct answer without working	**3 AO2.1**

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Q3.

	Answer	Additional guidance	Mark
(i)	An explanation linking two of: the crack reflects/bounces back /echoes the signal (1) in a shorter time/ before it reaches the base of the metal (1)	Q is reflection from crack/P and R are reflections from the base	(2) AO3

	Answer	Additional guidance	Mark
(ii)	One from:- less of the pulse reaches the base (1) some energy is absorbed by the crack (1) some energy is reflected by the crack (1)	allow less of the pulse is reflected/bounces off base allow signal/wave/energy/ultrasound for pulse allow signal/wave/pulse/ultrasound for energy allow signal/wave/pulse/ultrasound for energy	(1) AO1

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