Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Waves (High Demand Questions)

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Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

(a) speed / velocity in the glass is lower

speed / velocity changes is insufficient
allow the refractive index of glass is higher than that of air
allow glass has a higher optical density than air

1

so the edge of the wave(front) entering the glass slows down

1

but the part of the wave(front) in the air continues at the higher speed / velocity (causing a change in direction)

1

(b) correct ray in the prism bent towards the normal

1

second normal at 90° at the point the ray emerges

1

correct emergent ray bent away from the normal

this mark can be awarded without a normal line drawn

1

(c) violet has the shortest wavelength (400 nm)

1

violet light travels the slowest in water

1

violet light undergoes the greatest change in speed (and direction)

1

[9]

Q2.

(a) in a longitudinal wave, the oscillations / vibrations are parallel to the direction of energy transfer

allow direction of travel for energy transfer

1

in a transverse wave, the oscillations / vibrations are perpendicular to the direction of energy transfer

allow direction of travel for energy transfer
*if no other mark scored allow **1** mark for (oscillations /*

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*vibrations of) longitudinal waves are parallel **and** (oscillations / vibrations of) transverse waves are perpendicular*

*if no other mark scored allow **1** mark for transverse waves have peaks and troughs **and** longitudinal waves have compressions and rarefactions*

1

(b) $3.0 \times 10^8 = 4.8 \times 10^9 \times \lambda$

allow $\lambda = \frac{3.0 \times 10^8}{4.8 \times 10^9}$

this mark may be awarded if the standard form values are incorrectly converted

1

$\lambda = 0.0625$ (m)

1

$\lambda = 0.063$ (m)
or
$\lambda = 6.3 \times 10^{-2}$ (m)

allow an answer to 2 sig figs that is consistent with their calculated value of λ and has required rounding

1

*an answer of 0.063 (m) scores **3** marks*

(c) any **three** from:

- (the car aerial) absorbs radio waves or energy
- electrons are made to vibrate (in the aerial)
- creating an alternating current (in the aerial circuit)
- the (signal) frequency is the same (as the radio wave)

3

[8]

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