Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Waves (HDQ)

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Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Mark Schemes

Q1.

(a) (i) microwave

1

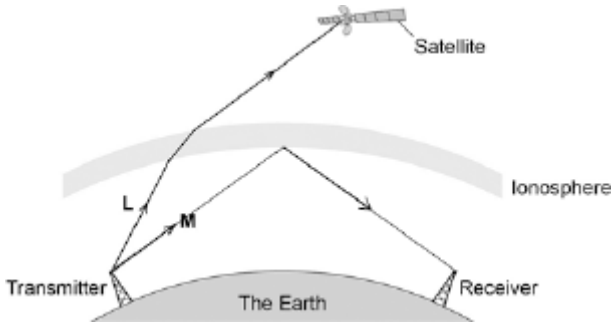
(ii) refraction

1

(b) (i) wave M continues as a straight line to the ionosphere and shown reflected
accept reflection at or within the ionosphere

1

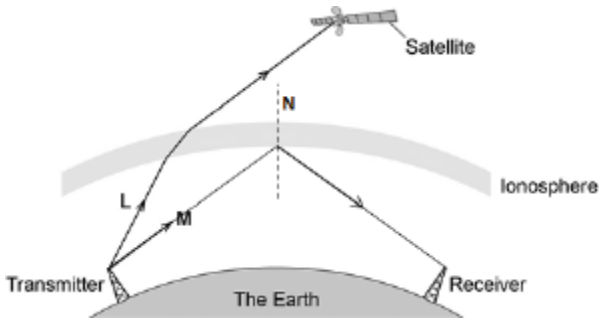
correctly reflected wave shown as a straight line reaching the top of the receiver
if more than 2 rays shown 1 mark maximum



ignore arrows

1

(ii) normal drawn at point where their **M** meets the ionosphere



1

(c) any **two** from:

- transverse
- same speed (through air)
  *accept speed of light **or** 3×10^8 m / s*

- can be reflected
- can be refracted
- can be diffracted
- can be absorbed
- transfer energy
- can travel through a vacuum

  *an answer travel at the same speed though a vacuum scores **2** marks*
- can be polarised
- show interference.

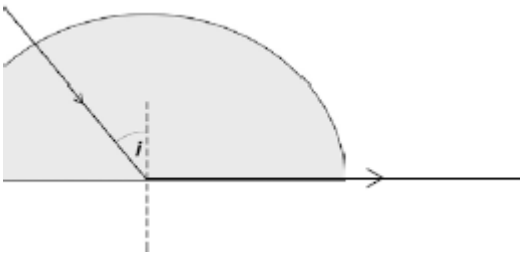
  travel in straight lines is insufficient

2

[7]

Q2.

(a) (i) line drawn at 90 degrees to the normal:



ignore (partial) reflection of the ray

1

(ii) 1.5

award both marks for an answer that rounds to 1.5

*award **1** mark for correct substitution ie 1 / sin 41*
***or** 1 / 0.656(059)*

2

(b) 26

*award **3** marks for an answer that rounds to 26*

*award **2** marks for*

$1.3 = \frac{0.57(3576)}{\sin r}$

or

$r = \sin^{-1}(0.57(3576) / 1.3)$

*award **1** mark for correct substitution.ie* $1.3 = \frac{\sin 35}{\sin r}$

or

sin 35° shown correctly, ie 0.57(3576), or used correctly in the calculation

an answer of 0.44 scores 2 marks

an answer of 26.9 scores 0

3

[6]

Q3.

(a) (i) frequency

1

wavelength

1

(ii) 10^{-15} to 10^{4}

1

(b) 2.0×10^{5}

correct substitution of
*3.0×10^{8} / 1500 gains **1** mark*

2

Hz

1

(c) (i) (skin) burns

1

(ii) skin cancer / blindness

1

(d) (i) any **one** from:

- (detecting) bone fractures
- (detecting) dental problems
- treating cancer

1

(ii) any **one** from:

- affect photographic film
- absorbed by bone
- transmitted by soft tissue
- kill (cancer) cells

*answer must link to answer given in **(d)(i)***

1

(iii) 9 / 36 = 0.25
0.5 / 2 = 0.25
4 / 16 = 0.25

accept:
36 / 9 = 4
2 / 0.5 = 4
16 / 4 = 4

2

conclusion based on calculation

*two calculations correct with a valid conclusion scores **2** marks*
*one correct calculation of k scores **1** mark*

1

[13]