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

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

Q1.

(a) Ultrasound is sound above the maximum frequency that humans can hear.

Tick (✔) **one** box.

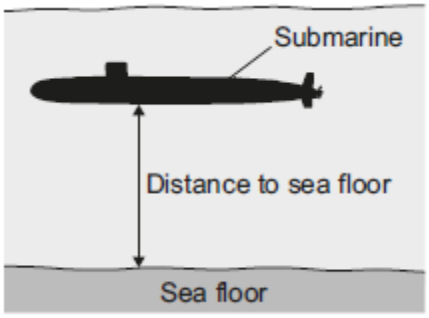
20 Hz ☐

2000 Hz ☐

20 000 Hz ☐

(1)

(b) The image shows a submerged submarine.



Not to scale

The submarine sends a pulse of ultrasound to the sea floor.
The pulse takes 0.25 seconds to travel from the submarine to the sea floor.

The speed of sound in water is 1600 m/s.

Calculate the distance from the submarine to the sea floor.

_____

_____

_____

_____

Distance = _____ m

(2)

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(c) The ultrasound is reflected from the sea floor back to the submarine.
Use the correct answer from the box to complete the sentence.

half	the same as	twice

The total distance the ultrasound pulse travelled is _____ the distance to the sea floor.

(1)

(d) The submarine moves through the sea and every few seconds sends a pulse of ultrasound to check the distance to the sea floor.

The table shows the time taken for five ultrasound pulses to travel from the submarine to the sea floor and back to the submarine.

Pulse number	Time for pulse to return in seconds
1	0.50
2	0.45
3	0.38
4	0.40
5	0.48

Describe how the distance from the submarine to the sea floor changed over these five pulses.

_____

_____

_____

_____

(2)

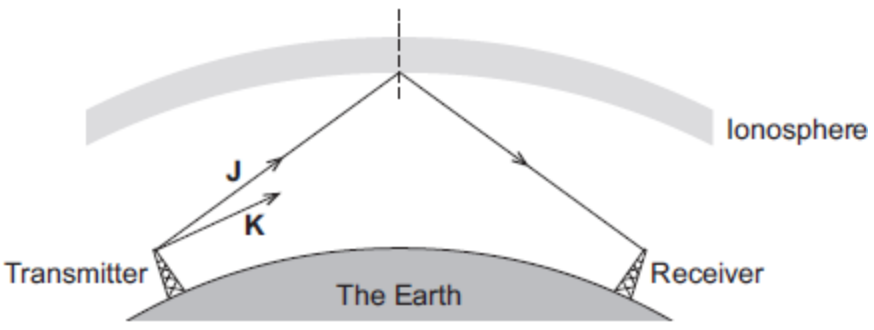
(Total 6 marks)

Q2.

Different parts of the electromagnetic spectrum are useful for different methods of communication.

(a) **Figure 1** shows a transmitter emitting two electromagnetic waves, **J** and **K**.

Figure 1



Wave **J** is reflected by a layer in the atmosphere called the ionosphere.

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(i) Wave **K** will also be reflected by the ionosphere.
On **Figure 1**, draw the path of wave **K** to show that it **does not** reach the receiver.

(2)

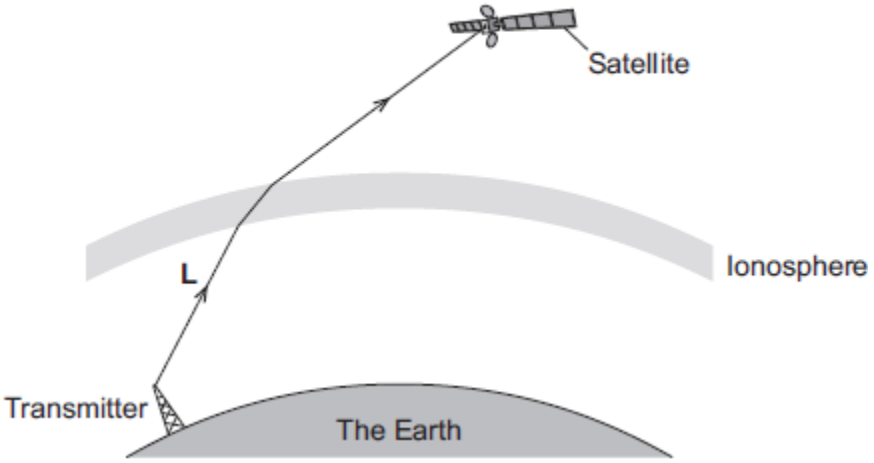
(ii) What is the name given to the dashed line in **Figure 1**?

_____

(1)

(b) **Figure 2** shows a transmitter sending a signal to a satellite orbiting the Earth.

Figure 2



(i) Which type of electromagnetic wave is used to send a signal to a satellite?

Draw a ring around the correct answer.

gamma **microwave** **ultraviolet**

(1)

(ii) What name is given to the process that occurs as wave **L** passes into the ionosphere?

Draw a ring around the correct answer.

diffraction **reflection** **refraction**

(1)

(c) Waves **J**, **K** and **L** are electromagnetic waves.

What are **two** properties of **all** electromagnetic waves?

Tick (✓) **two** boxes.

Property	**Tick (✓)**
All electromagnetic waves are longitudinal.	
All electromagnetic waves are transverse.	
All electromagnetic waves are mechanical.	

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All electromagnetic waves have the same speed in a vacuum.	
All electromagnetic waves have the same frequency.	

(2)

(Total 7 marks)

Q3.

Light changes direction as it passes from one medium to another.

(a) Use the correct answer from the box to complete the sentence.

diffraction	**reflection**	**refraction**

The change of direction when light passes from one medium to another is called _____ .

(1)

(b) Draw a ring around the correct answer to complete the sentence.

When light passes from air into a glass block, it changes

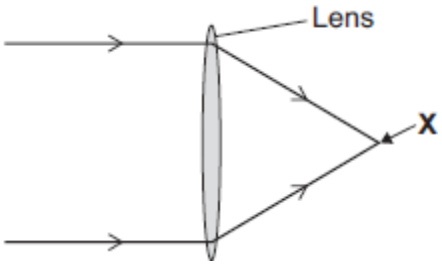
direction

away from the normal.
towards the normal.
to always travel along the normal.

(1)

(c) **Diagram 1** shows light rays entering and passing through a lens.

Diagram 1



(i) Which type of lens is shown in **Diagram 1**?

Draw a ring around the correct answer.

concave **convex** **diverging**

(1)

(ii) In **Diagram 1**, what is the point **X** called?

_____

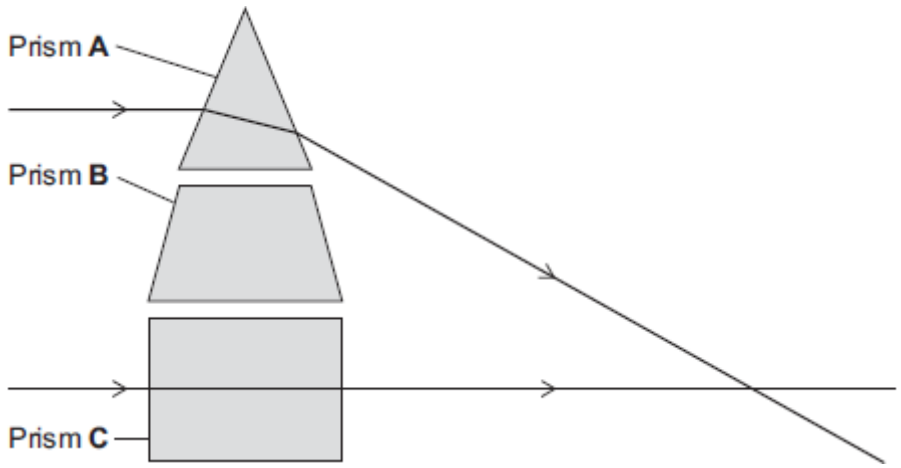
(1)

(d) A lens acts like a number of prisms.

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Diagram 2 shows two parallel rays of light entering and passing through prism **A** and prism **C**.

Diagram 2



Draw a third parallel ray entering and passing through prism **B**.

(4)

(e) What **two** factors determine the focal length of a lens?

1. _____

2. _____

(2)

(Total 10 marks)

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