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

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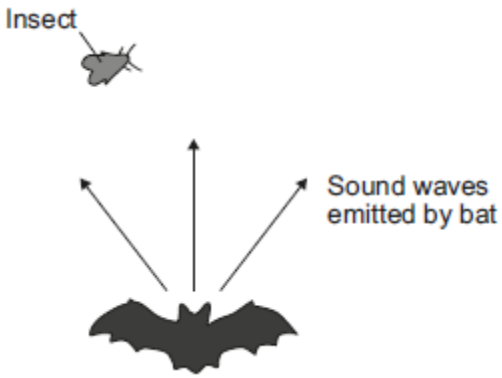
Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

Bats use the reflection of high pitched sound waves to determine the position of objects.
The image below shows a bat and an insect flying in front of the bat.



(a) What determines the pitch of a sound wave?

Tick (✔) **one** box.

	Tick (✔)
amplitude	
frequency	
speed	

(1)

(b) State the name given to reflected sound waves.

_____

(1)

(c) The bat emits a sound wave with a frequency of 25.0 kHz and a wavelength of 0.0136 metres.

Calculate the speed of this sound wave.

_____

_____

_____

Speed = _____ m/s

(2)

(d) Sound waves are longitudinal. Describe a longitudinal sound wave.

_____

_____

_____

_____

(2)

(Total 6 marks)

Q2.

Infrared and microwaves are two types of electromagnetic radiation.

(a) State **one** example of the use of each type of radiation for communication.

Infrared: _____

Microwaves: _____

(2)

(b) Some of the properties of infrared and microwaves are the same.

State **two** of these properties.

1. _____

_____

2. _____

_____

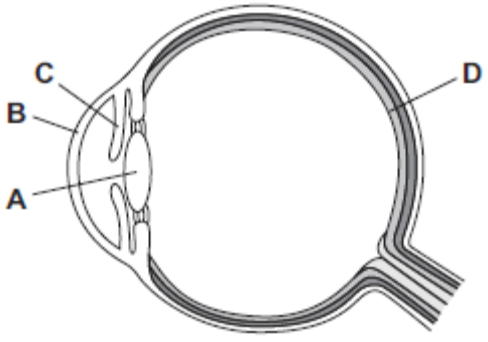
(2)

(Total 4 marks)

Q3.

(a) **Figure 1** shows a section through a human eye.

Figure 1



Write the correct letter, **A**, **B**, **C** or **D**, in each empty box to identify the parts of the eye labelled in **Figure 1**.

Part of the eye	A, B, C or D

Cornea	
Lens	
Retina	

(3)

(b) The table shows how the mass of 1 cm^3 of different materials varies with refractive index.

Material	**Refractive index**	**Mass in g**
Water	1.33	1.00
Glass **X**	1.52	2.54
Glass **Y**	1.70	2.93
Glass **Z**	1.81	3.37

(i) Describe the pattern shown in above table.

_____

_____

(1)

(ii) Lenses used for correcting visual defects often have a low refractive index.

State **one** advantage and **one** disadvantage of using lenses with a high refractive index for correcting visual defects.

Advantage _____

Disadvantage _____

(2)

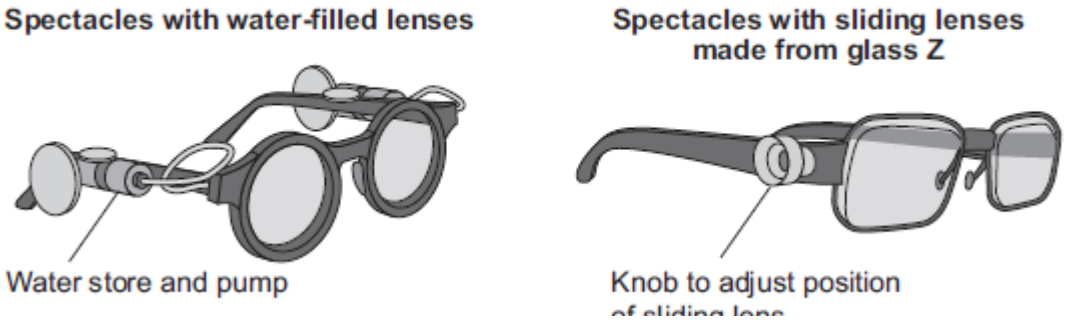
(iii) The eyesight of a person can change throughout their lifetime. Scientists have designed cheap spectacles that allow the wearer to change the focal length of the lenses as their eyesight changes.

Two designs are:

- using water-filled lenses where water is pumped in or out of the lens to change its shape
- using a pair of specially shaped lenses for each eye that are able to slide across each other.

Figure 2 shows these two designs.

Figure 2



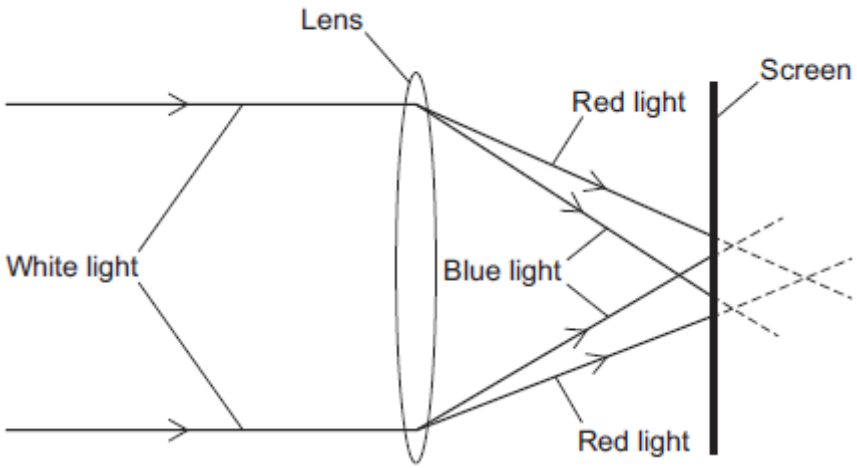
Suggest **one** advantage and **one** disadvantage of each design.

(4)

(c) **Figure 3** shows parallel rays of white light from a distant point being refracted towards a screen by a lens.

The lens is made from a glass with a much greater refractive index than glass normally used for correcting visual defects.

Figure 3



What would you notice about the image on the screen?

State **two** observations.

1. _____

_____

2. _____

_____

(2)

(Total 12 marks)