Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 5_ Light And Electromagnetic Spectrum

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

Q1.

A student investigates what happens when light travels from air to glass.

Figure 2 shows some of the apparatus used in the investigation.

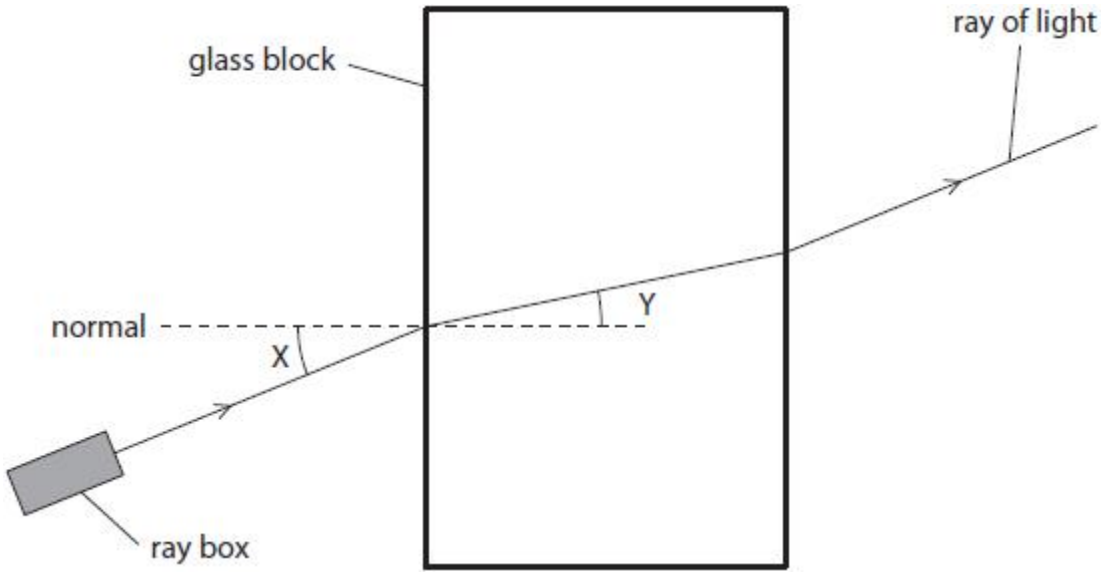

Figure 2

(i) In Figure 2, angle Y is the angle of

(1)

- ☒ **A** deflection
- ☒ **B** incidence
- ☒ **C** reflection
- ☒ **D** refraction

(ii) Figure 3 is a graph of the student's results.

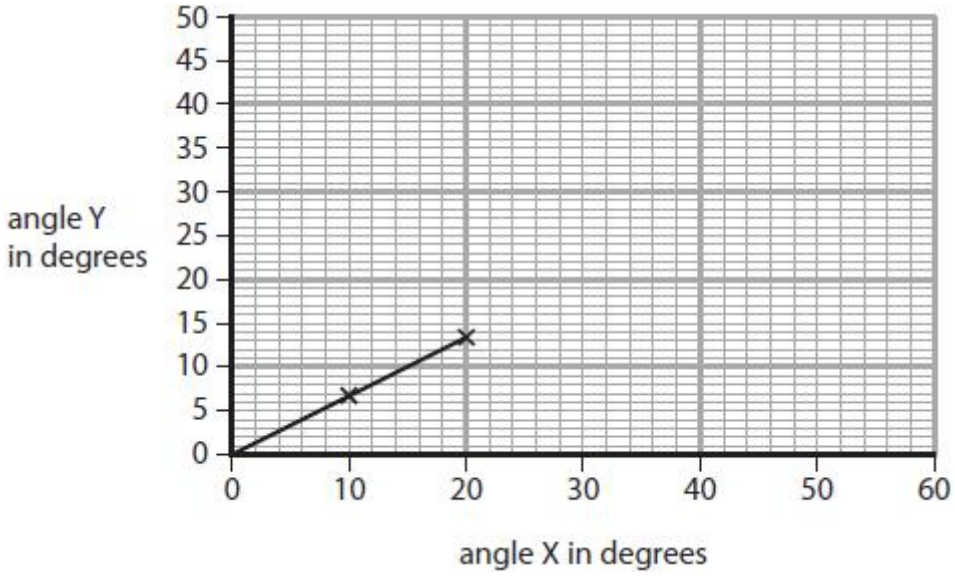

Figure 3

Use the graph to calculate a value for

$$\frac{\text{angle Y}}{\text{angle X}}$$

(2)

$\frac{\text{angle Y}}{\text{angle X}} =$ .....

(iii) The student concludes that angle Y is directly proportional to angle X.

Explain what the student must do to test this conclusion in more detail.

(3)

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(Total for question = 6 marks)

Q2.

Diagram 1 shows a glass prism which can be used to turn an image the right way up.

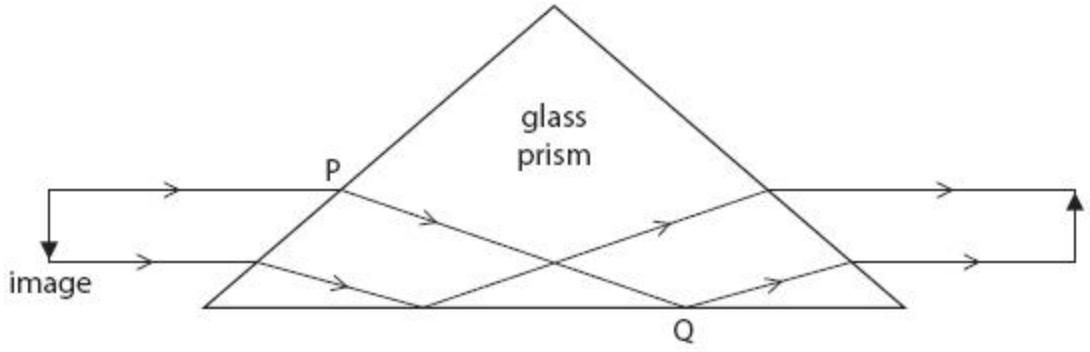

Diagram 1

(a) (i) In diagram 1, total internal reflection occurs at Q.
Explain why total internal reflection occurs at Q.

(2)

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(ii) The way in which the light changes direction at P is shown in diagram 2.
Mark on the diagram (*i*) for the angle of incidence and (*r*) for the angle of refraction for the ray of light shown.

(2)

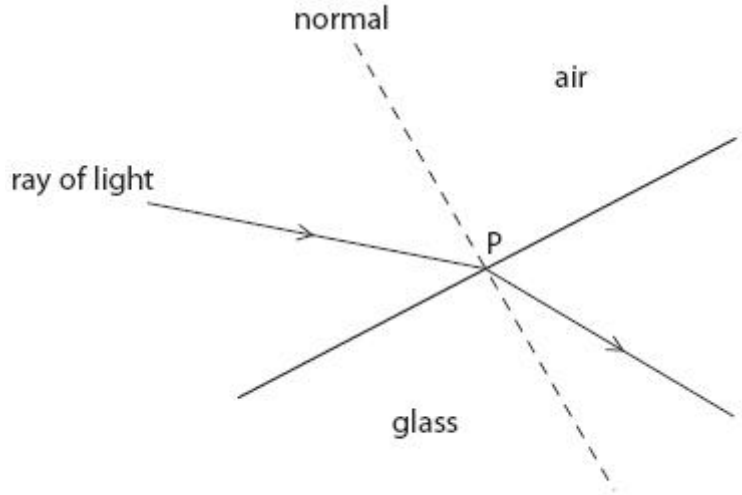

Diagram 2

(iii) Which of these is correct for the light as it enters the prism at P?
Put a cross (☒) in the box next to your answer.

(1)

☒ **A** frequency decreases

☒ **B** frequency increases

☒ **C** speed decreases

☒ **D** speed increases

(b) Light waves and sound waves are both used in the diagnosis and treatment of medical conditions
(i) A doctor uses an endoscope to look inside the body of a patient.
Explain how optical fibres are used in endoscopes.
You may draw a labelled diagram to help with your answer.

(3)

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(ii) Describe how ultrasound can be used as a medical treatment for illness or injury.

(2)

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(Total for Question = 10 marks)

Q3.

Radio waves from Jupiter take 40 minutes to reach Earth.

Light waves from the Sun take 8 minutes to reach Earth.

Calculate how many times further it is from Earth to Jupiter than from Earth to the Sun.

State the property of electromagnetic radiation that is used in your answer.

(2)

..... times

property .....

.....

(Total for question = 2 marks)