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

Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Q1.

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

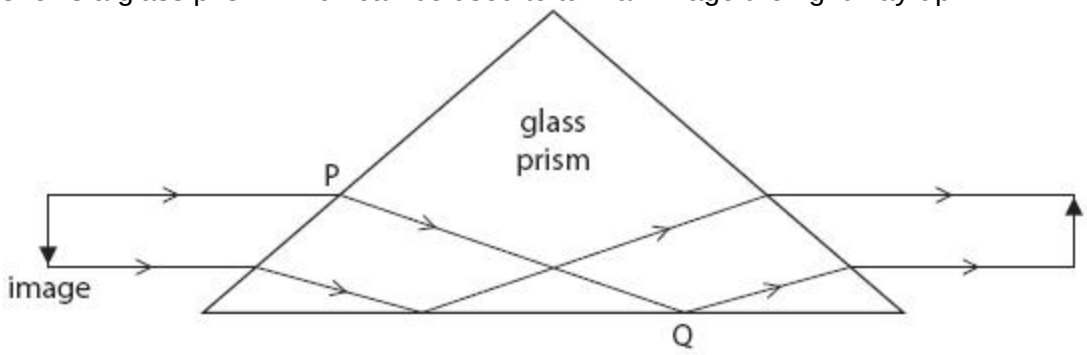

Diagram 1

(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)

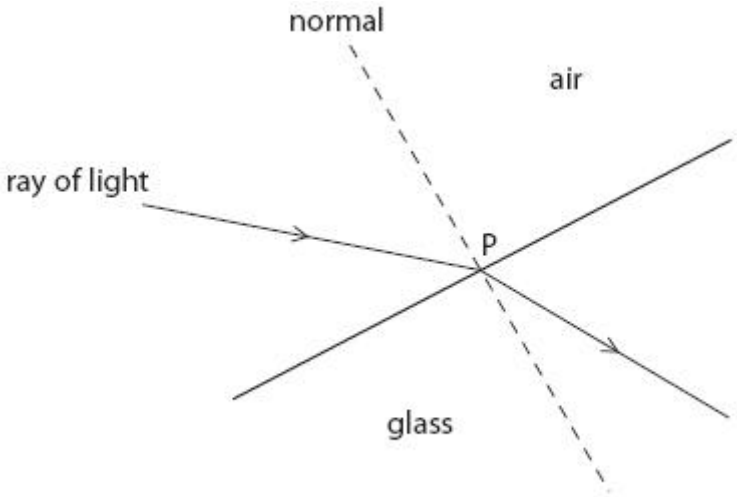

Diagram 2

(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

Q2.

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

Figure 15 shows some of the apparatus used in the investigation.

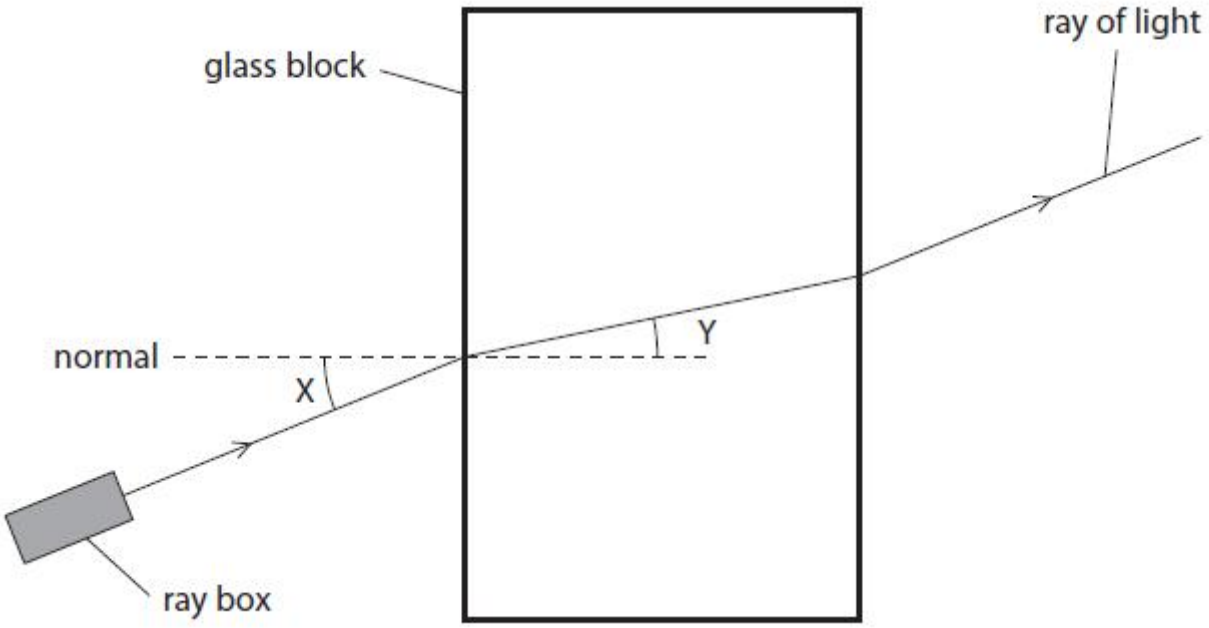

Figure 15

(i) In Figure 15, angle Y is the angle of

(1)

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

(ii) Figure 16 is a graph of the student's results.

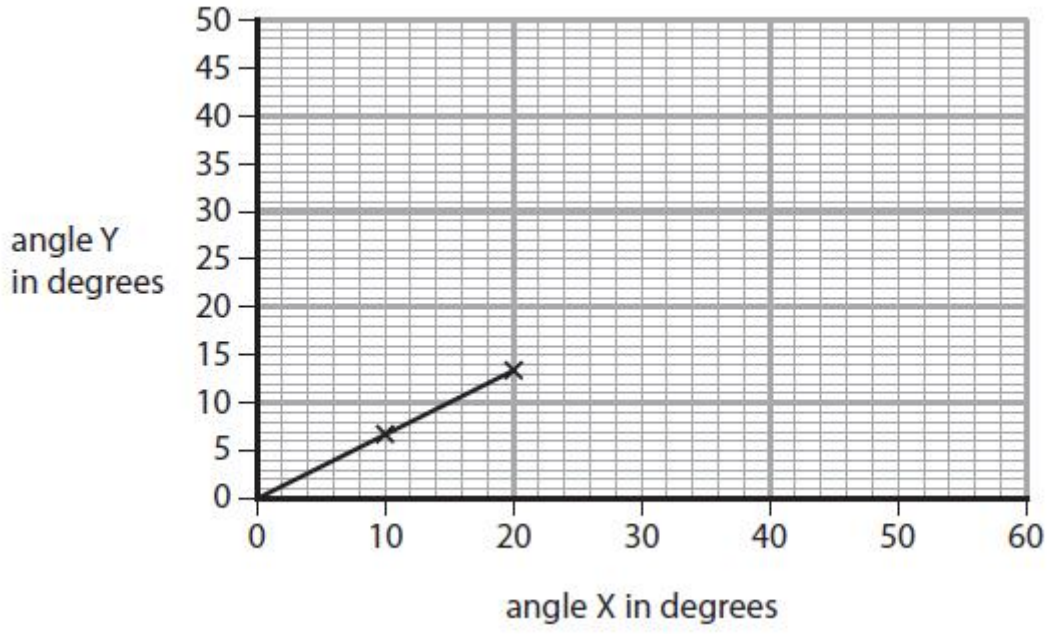

Figure 16

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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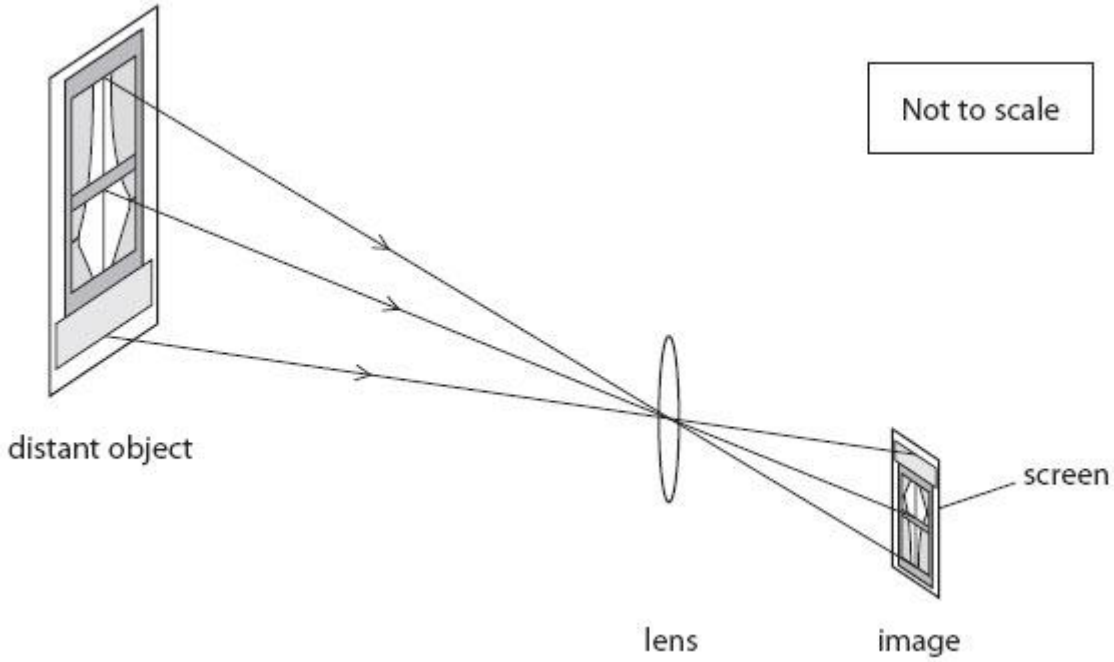
(Total for question = 6 marks)

Q3.

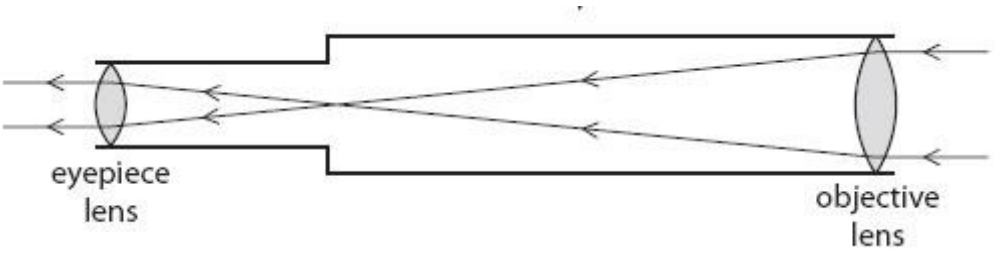
A lens can be used to produce a clear image of a distant object on a screen.



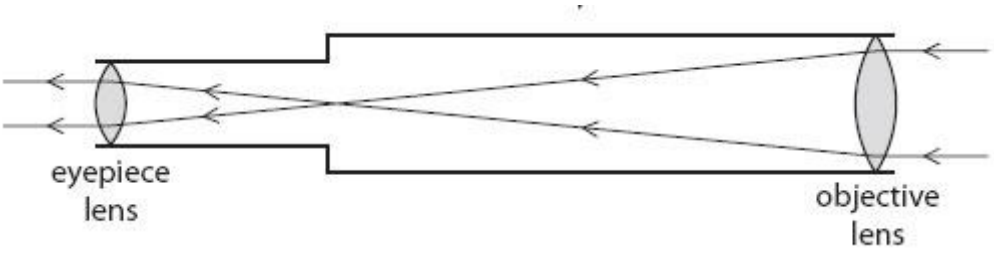
(a) (i) Complete the sentence by putting a cross (■) in the box next to your answer.

The image produced is real because it is

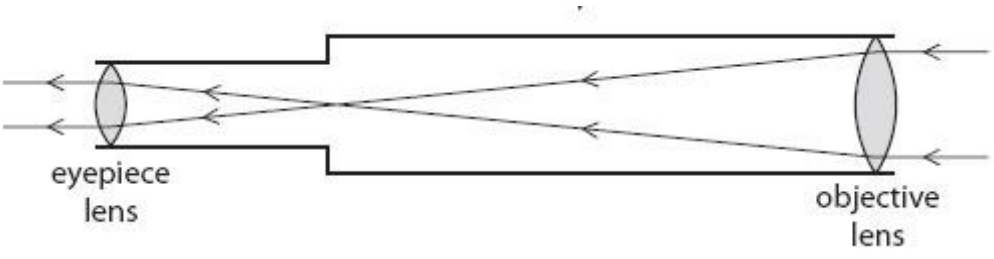
(1)



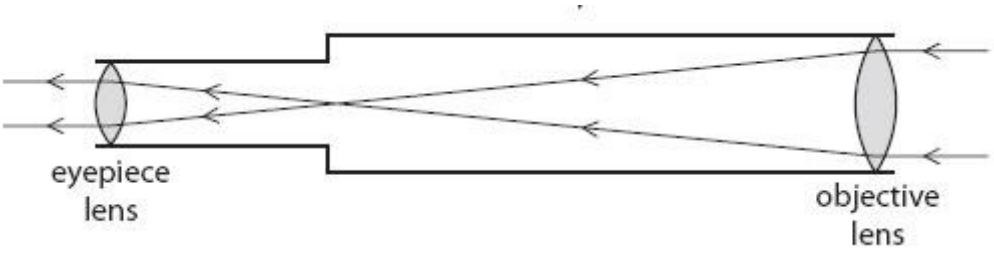
A in focus



B magnified



C on a screen



D smaller

(ii) Describe how to measure the focal length of the lens.

(2)

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(b) The diagram shows a simple telescope which uses two lenses to look at stars.

(i) Explain what the eyepiece lens does.

(2)

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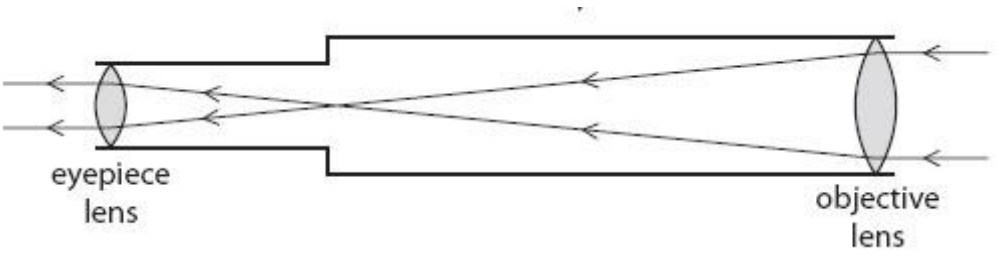
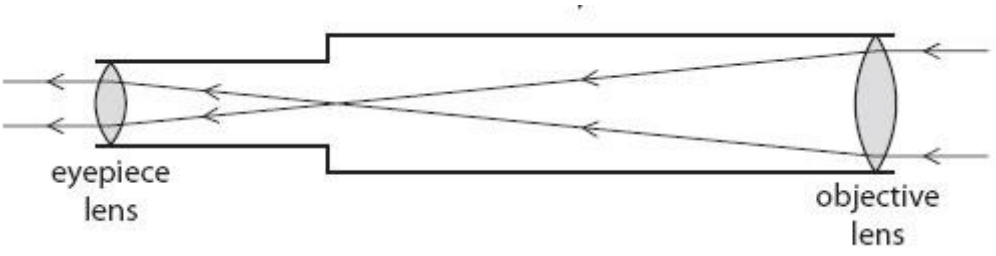
(ii) Complete the sentence by putting a cross (■) in the box next to your answer.

The light that travels from the stars transfers

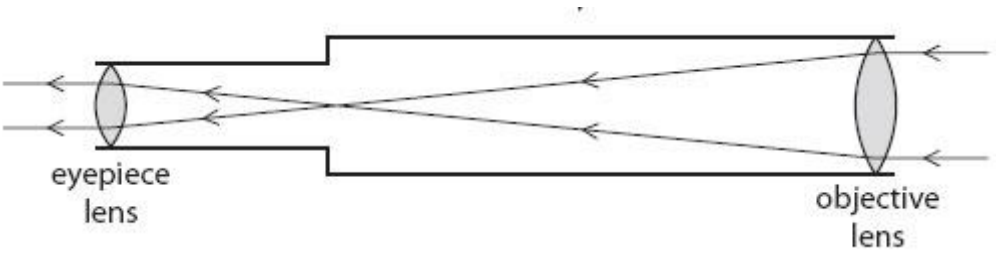
(1)



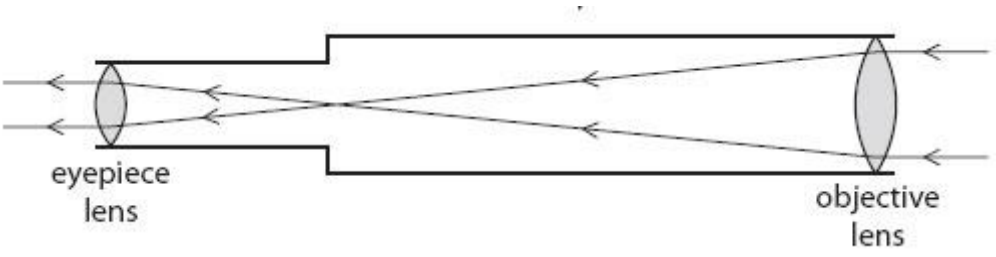
A charge



B energy



C mass



D matter

(c) Light and sound waves are produced at the same time by an explosion on Earth.

(i) The sound of the explosion is heard 1920 metres away 6.0 seconds after the explosion has happened.

Calculate the speed of sound in air.

(2)

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(ii) A scientist is standing a long way from the explosion.

Explain why he hears the explosion a few seconds after he sees it.

(2)

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(Total for Question = 10 marks)