

Name of the Student: _____

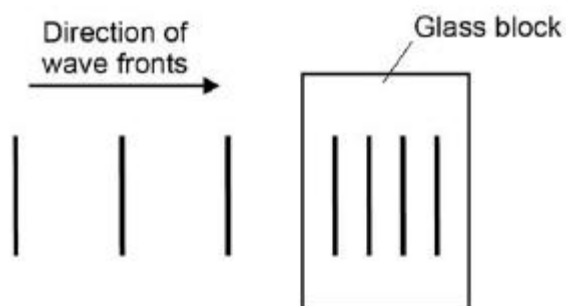
Max. Marks : 22 Marks

Time : 22 Minutes

Q1.

Figure 1 is a wave front diagram showing light travelling through the air and into a glass block.

Figure 1

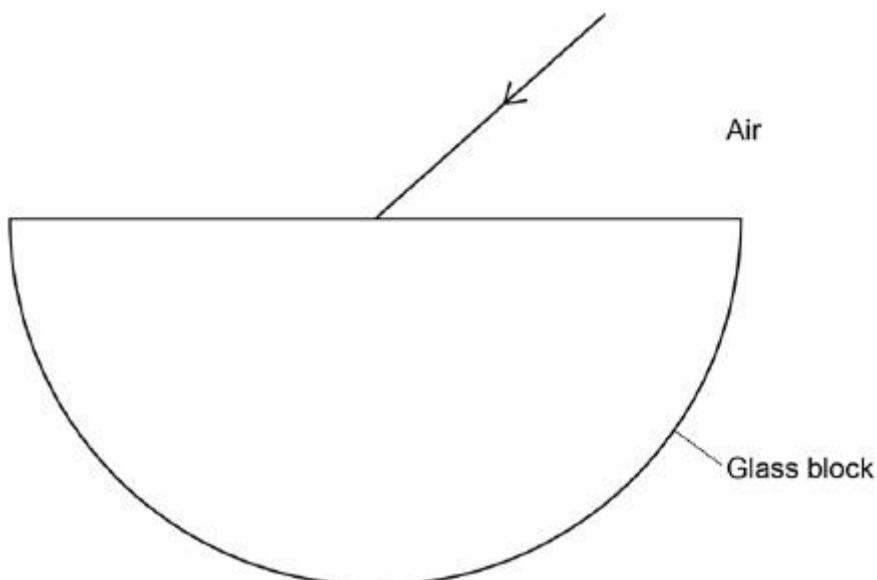


(a) Complete Figure 1 by drawing wave fronts after they have left the glass block.

(1)

(b) Figure 2 shows a ray of light incident on a semi-circular glass block.

Figure 2



Complete the ray diagram in Figure 2.

- Draw the ray of light passing through and leaving the glass block.
- Label the angle of refraction.

(c) Explain why the light is refracted.

(2)

(d) A student investigated how different coloured light was refracted by glass.

The student aimed rays of different coloured light at a glass block.

She measured the angle of refraction for each colour.

Give **two** variables that the student should control.

1. _____

2. _____

(2)

The table shows the student's results.

Colour of light	Angle of refraction in degrees
Red	27.94
Orange	27.90
Yellow	27.82
Green	27.78
Blue	27.70

(e) Explain why these results could **not** have been obtained with a normal protractor.

(2)

(f) What conclusion can be made about the relationship between the wavelength of light and the angle of refraction?

(1)

Frequency = _____ Hz

(3)

(Total 9 marks)