10 This question is about light.

(a) Diagram 1 shows a light ray entering a glass prism.

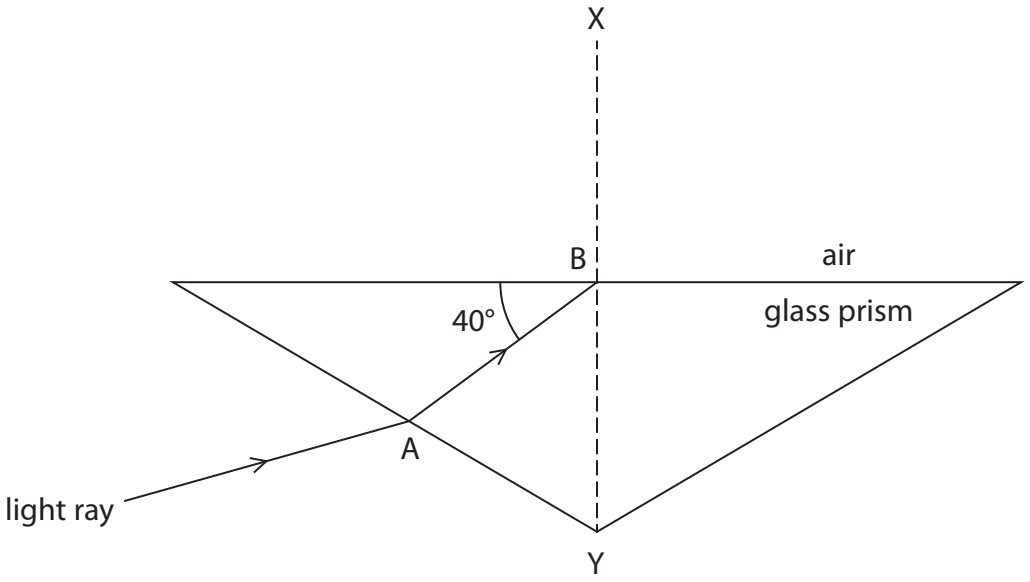

Diagram 1

(i) Describe what happens to the light ray when it enters the prism at point A.

(2)

.....

.....

.....

.....

(ii) State the name of line XY.

(1)

.....

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(iii) State the formula linking critical angle and refractive index.

(1)

(iv) The refractive index for the glass in this prism is 1.6

Calculate the critical angle for the glass in this prism.

(3)

critical angle = ... °

(v) Complete Diagram 1 by continuing the path of the light ray from point B.

(2)

(b) Diagram 2 shows a similar prism that is made from a material with a different refractive index.

The critical angle for the material of this prism is 55°

Complete Diagram 2 by continuing the path of the light ray.

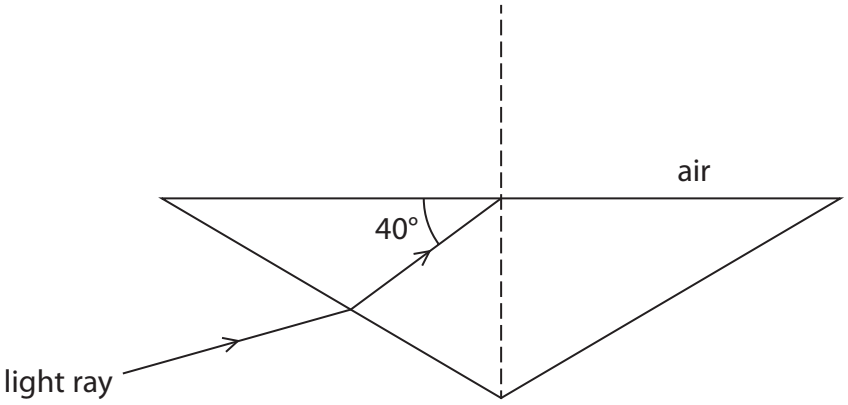

Diagram 2

(2)

(Total for Question 10 = 11 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA