

6 This question is about optical fibres.

(a) Optical fibres use light waves for communication.

Which of these is a correct statement about waves?

(1)

- ☐ **A** waves transfer energy, information and matter
- ☐ **B** waves do not transfer energy, information, or matter
- ☐ **C** waves transfer energy without transferring information or matter
- ☐ **D** waves transfer energy and information without transferring matter

(b) A ray of light passes from air into a glass optical fibre.

Diagram 1 shows the path of the ray of light after it has passed through the boundary between air and the optical fibre.

(i) Draw the path of the ray of light in air before it passed through the boundary.

(1)

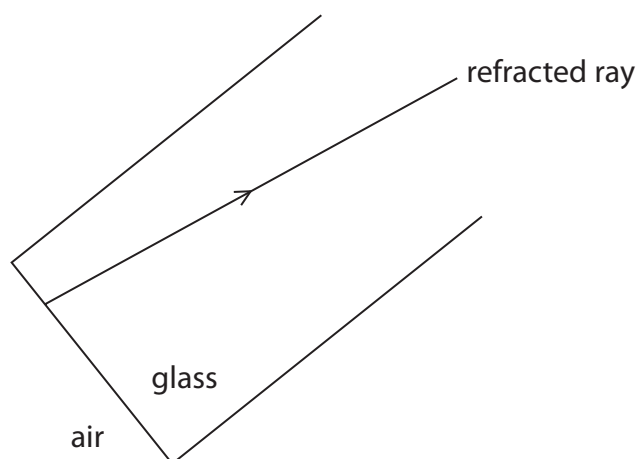


Diagram 1

(ii) State the name of the wave behaviour responsible for the path of the ray of light as it passes from air into the optical fibre.

(1)

(c) Diagram 2 shows the path of the ray of light as it travels through the optical fibre.

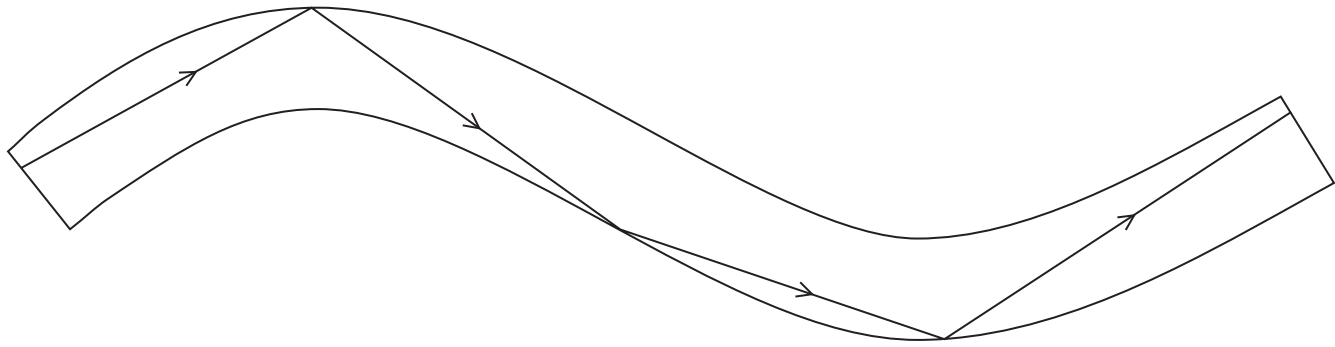


Diagram 2

Explain the path of the ray of light as it travels through the optical fibre.

(3)

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(Total for Question 6 = 6 marks)

