

- 4 Fig. 4.1 shows an arrangement for producing stationary waves in a tube that is closed at one end.

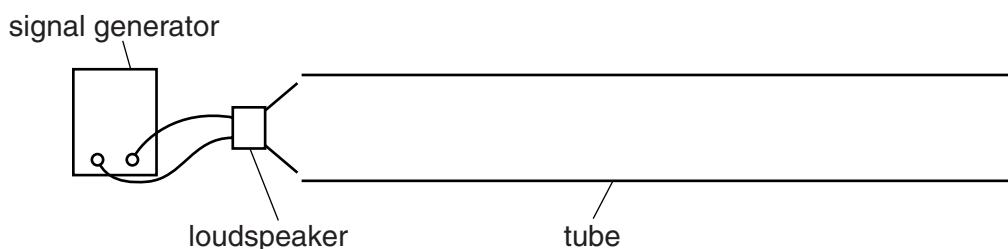


Fig. 4.1

- (a) Explain how waves from the loudspeaker produce stationary waves in the tube.

.....

 [3]

- (b) One of the stationary waves that may be formed in the tube is represented in Fig. 4.2.

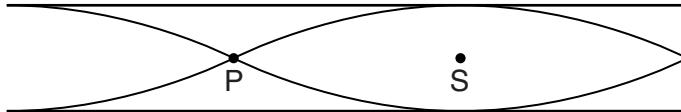


Fig. 4.2

- (i) Describe the motion of the air particles in the tube at

1. point P,

..... [1]

2. point S.

..... [1]

- (ii) The speed of sound in the tube is 330 m s^{-1} and the frequency of the waves from the loudspeaker is 880 Hz . Calculate the length of the tube.

$$\text{length} = \dots \text{ m} \quad [3]$$