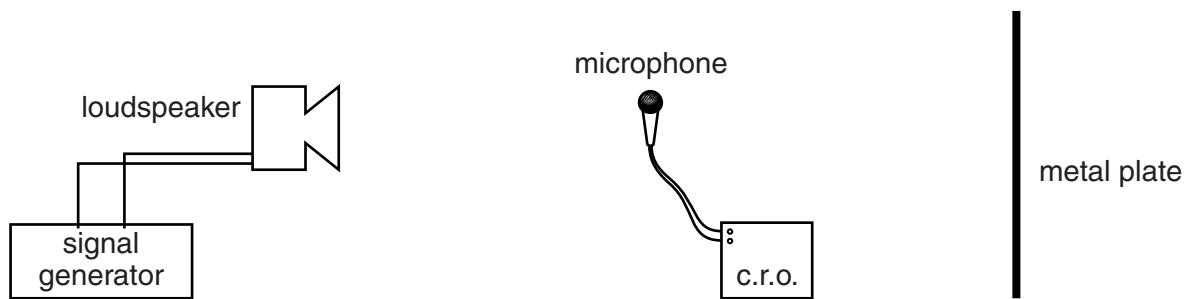


- 8 (a) Explain how stationary waves are formed.

.....  
.....  
..... [2]

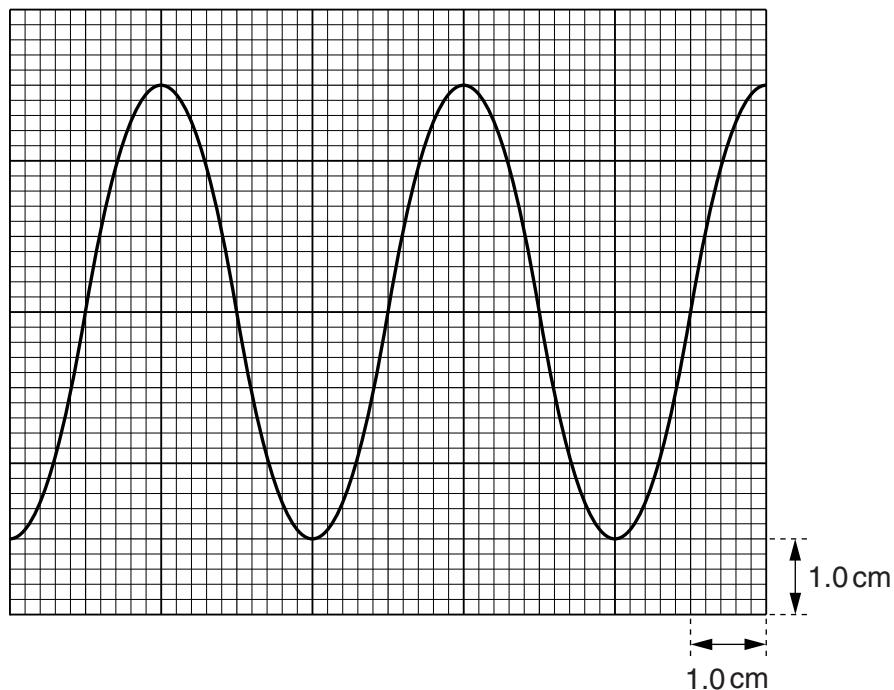
- (b) The arrangement of apparatus used to determine the wavelength of a sound wave is shown in Fig. 8.1.



**Fig. 8.1**

The loudspeaker emits sound of one frequency. The microphone is connected to a cathode-ray oscilloscope (c.r.o.).

The waveform obtained on the c.r.o. for one position of the microphone is shown in Fig. 8.2.



**Fig. 8.2**

The time-base setting of the c.r.o. is  $0.20\text{ ms cm}^{-1}$ .

- (i) Use Fig. 8.2 to show that the frequency of the sound is approximately 1300 Hz.

[2]

- (ii) Explain how the apparatus is used to determine the wavelength of the sound.

.....  
.....  
.....  
.....

[2]

- (iii) The wavelength of the sound wave is 0.26 m. Calculate the speed of sound in this experiment.

$$\text{speed} = \dots \text{ ms}^{-1} \quad [2]$$

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