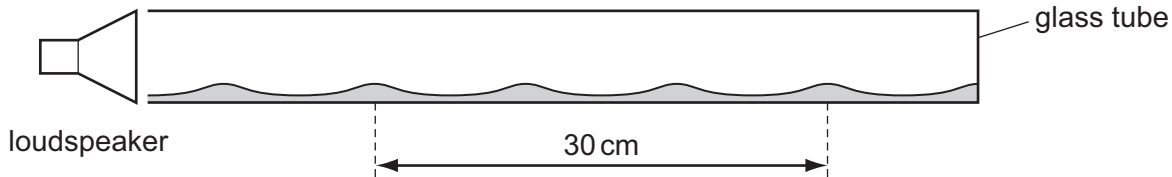


- 29** A horizontal glass tube, closed at one end, has a layer of dust laid inside it on its lower side. Sound is emitted from a loudspeaker that is placed near the open end of the tube.

The frequency of the sound is varied and, at one frequency, a stationary wave is formed inside the tube so that the dust forms small heaps.

The distance between four heaps of dust is 30 cm.



The speed of sound in the tube is  $330 \text{ m s}^{-1}$ .

What is the frequency of the sound emitted by the loudspeaker?

- A** 1650 Hz      **B** 2200 Hz      **C** 3300 Hz      **D** 6600 Hz

- 30** Monochromatic light of wavelength 600 nm passes through a diffraction grating with 200 lines per