

- 23** Which statement about progressive transverse and longitudinal waves is correct?
- A** Particles in a transverse wave have fixed equilibrium positions but those in longitudinal waves do not.
  - B** Transverse waves can be polarised but longitudinal waves cannot.
  - C** Transverse waves transfer energy but longitudinal waves do not.
  - D** Two-source interference can be demonstrated with transverse waves but not with longitudinal waves.

- 24** A miniature loudspeaker, initially at rest, falls vertically from a window in a high building. When the speaker has fallen a distance of 10.0 m, it emits a very short pulse of sound of constant frequency 256 Hz in all directions. The pulse of sound, travelling at a speed of  $330 \text{ ms}^{-1}$ , is heard by a person leaning out of the window.

Air resistance is negligible.

What is the frequency of the pulse of sound heard by the person?

- A** 246 Hz                      **B** 249 Hz                      **C** 267 Hz                      **D** 313 Hz

- 25** Two electromagnetic waves have wavelengths of  $5.0 \times 10^{-7} \text{ m}$  and  $5.0 \times 10^{-2} \text{ m}$  in a vacuum.

Which row identifies the regions of the electromagnetic spectrum to which the waves belong?

	wavelength $5.0 \times 10^{-7} \text{ m}$	wavelength $5.0 \times 10^{-2} \text{ m}$
<b>A</b>	ultraviolet	infrared
<b>B</b>	visible	microwave
<b>C</b>	ultraviolet	microwave
<b>D</b>	visible	infrared