

- 26** Gamma-rays, microwaves, visible light and X-rays are four regions of the electromagnetic spectrum.

Which list shows these four regions in order of increasing wavelength?

- A** microwaves → visible light → X-rays → gamma-rays
- B** gamma-rays → X-rays → visible light → microwaves
- C** X-rays → gamma-rays → microwaves → visible light
- D** microwaves → visible light → gamma-rays → X-rays

- 27** To produce a stationary wave, two waves must travel in opposite directions through the same space.

Which statement about the properties of the two waves **must** also be correct?

- A** The waves must have equal frequencies, but different speeds and wavelengths.
- B** The waves must have equal speeds, but different wavelengths and frequencies.
- C** The waves must have equal speeds, frequencies and wavelengths.
- D** The waves must have equal wavelengths, but different speeds and frequencies.

- 28** The speed of sound in air is  $330 \text{ m s}^{-1}$ .

Which size of architectural features in a large concert hall would best diffract sound waves of frequency 0.44 kHz?

- A** 1.3 mm      **B** 750 mm      **C** 7.5 m      **D** 17 m

- 29** A double-slit interference pattern using red light of wavelength  $7.0 \times 10^{-7} \text{ m}$  has a fringe spacing of 3.5 mm.

Which fringe spacing would be observed for the same arrangement of apparatus but using blue light of wavelength  $4.5 \times 10^{-7} \text{ m}$ ?

- A** 2.3 mm      **B** 3.5 mm      **C** 5.4 mm      **D** 9.0 mm