

23 Sound travels through air as a series of compressions and rarefactions.

Which statement correctly compares a compression with a rarefaction?

- A** In a compression, the wavelength is longer than in a rarefaction.
- B** In a compression, the wavelength is shorter than in a rarefaction.
- C** In a compression, the density of the air is greater than in a rarefaction.
- D** In a compression, the density of the air is lower than in a rarefaction.

22 A sound wave travels at 330 m/s. The distance between the centre of a compression and the centre of the nearest rarefaction in the sound wave is 2.5 cm.

What is the frequency of the sound wave?

- A** 66 Hz
- B** 130 Hz
- C** 6600 Hz
- D** 13 000 Hz

23 Which waves are used in the medical scanning of soft tissue?

- A** gamma rays
- B** infrared
- C** microwaves
- D** ultrasound

22 Student X fires a starting pistol which produces smoke and sound. Student Y is standing 100 m away and sees the smoke the instant it is produced. The speed of sound in air is 340 m/s.

What is the time delay between student Y seeing the smoke and hearing the sound?

- A** 0.29 s
- B** 0.59 s
- C** 1.7 s
- D** 3.4 s