

- 25** An ambulance travels along a straight road at a speed of  $30.0 \text{ m s}^{-1}$ . Its siren emits sound of frequency  $2000 \text{ Hz}$ . The speed of sound in the air is  $340 \text{ m s}^{-1}$ . The ambulance passes a man standing at the side of the road.

What is the frequency of the sound heard by the man as the ambulance moves towards him and as the ambulance moves away from him?

	frequency heard as ambulance moves towards man / Hz	frequency heard as ambulance moves away from man / Hz
<b>A</b>	1820	2180
<b>B</b>	1840	2190
<b>C</b>	2180	1820
<b>D</b>	2190	1840

- 26** Three different electromagnetic waves P, Q and R have the frequencies shown.

	frequency / Hz
P	$3 \times 10^{10}$
Q	$3 \times 10^{13}$
R	$6 \times 10^{14}$

Which row identifies P, Q and R?

	P	Q	R
<b>A</b>	infra-red	visible	ultraviolet
<b>B</b>	microwave	infra-red	visible
<b>C</b>	ultraviolet	X-ray	gamma ray
<b>D</b>	visible	ultraviolet	X-ray

- 27** Which row describes the oscillations of two moving particles in a stationary wave that are separated by a distance of half a wavelength?

	phase difference	amplitude
<b>A</b>	$90^\circ$	different
<b>B</b>	$90^\circ$	same
<b>C</b>	$180^\circ$	different
<b>D</b>	$180^\circ$	same