

APOLLO

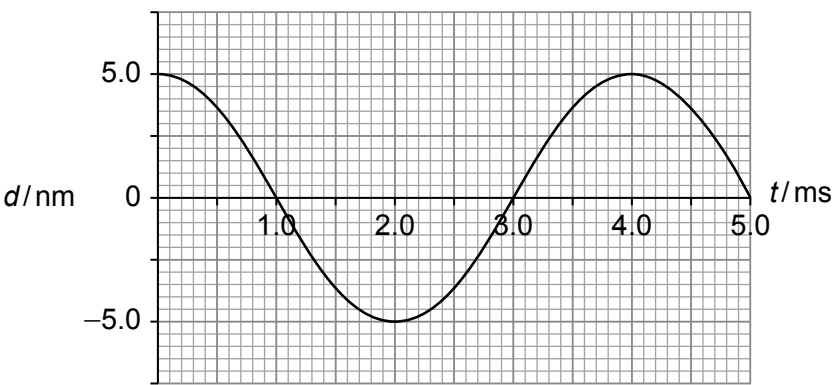
Wave model SL

Physics

First assessment 2025

6 questions | questions

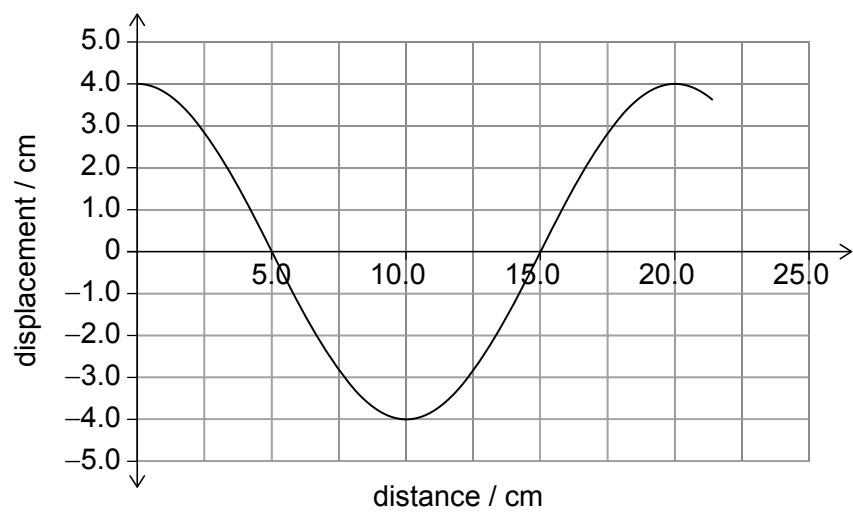
14. A wave is travelling through a medium. The variation with time t of the displacement d of a particle in the medium is shown.



What is the frequency and the amplitude of the wave?

	Frequency/Hz	Amplitude/nm
A.	4.0×10^{-3}	5.0
B.	250	5.0
C.	4.0×10^{-3}	10.0
D.	250	10.0

12. A transverse wave of period 20 ms travels through a medium. The graph shows the variation of particle displacement with distance for the wave.



What is the average speed of the particle motion and the direction of particle motion relative to the direction of the wave travel during one cycle?

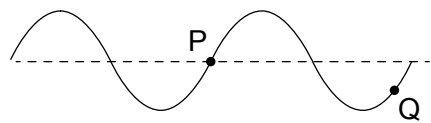
	Average speed of particle / ms ⁻¹	Direction of particle motion
A.	8	parallel
B.	8	perpendicular
C.	10	parallel
D.	10	perpendicular

13. An ultraviolet wave is travelling in a vacuum.

What is the frequency and the nature of the wave?

	Wave frequency / Hz	Nature of the wave
A.	10^{15}	transverse
B.	10^{15}	longitudinal
C.	10^{-7}	transverse
D.	10^{-7}	longitudinal

14. The diagram below shows a snapshot of a transverse wave on a rope. Points P and Q are two points on the rope at a position shown in the diagram. The subsequent motion of P is upwards.



What is the direction of motion of Q and the direction of travel of the wave?

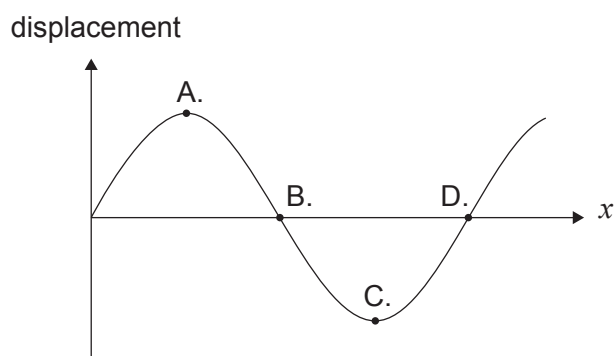
	Direction of motion of Q	Direction of travel of the wave
A.	Upwards	Left to right
B.	Downwards	Left to right
C.	Upwards	Right to left
D.	Downwards	Right to left

— 3 —

Turn over
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13. The graph shows how the displacement of a wave varies with the position x along the wave. The wave travels towards positive x .

At the instant shown, which point along the wave has the maximum positive velocity?



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0020-0710

- 13.** An electromagnetic wave has a wavelength that is about the size of the diameter of an atom.

What region of the electromagnetic spectrum does the wave belong to?

- A. Infrared
- B. Visible light
- C. Ultraviolet
- D. X-ray