

O Level Pure Physics MCQs

General Wave Properties Test 1.0

Q1

A vibrating source S produces circular water waves near a straight reflector. If the speed is 60 mm/s, find the wavelength and frequency of the waves.



	Wavelength/ mm	Frequency/ Hz
A	15.0	4.0
B	15.0	40
C	22.5	2.6
D	22.5	26

Q2

Fig. 22.1 shows a ripple tank. The dipper vibrates up and down at a constant frequency.

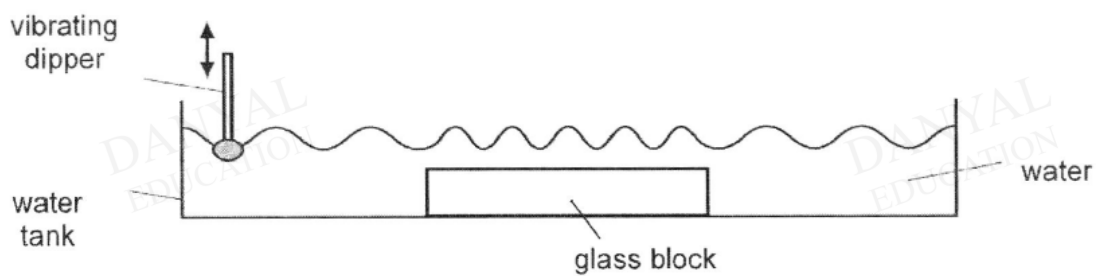


Fig. 22.1

What happens to the wavelength, frequency and speed of the wave as it reaches the glass block?

	wavelength	frequency	speed
A	increases	remains unchanged	increases
B	decreases	increases	increases
C	decreases	remains unchanged	decreases
D	increases	increases	decreases

Q3

Fig. 23.1 shows the cross-section of a water wave.

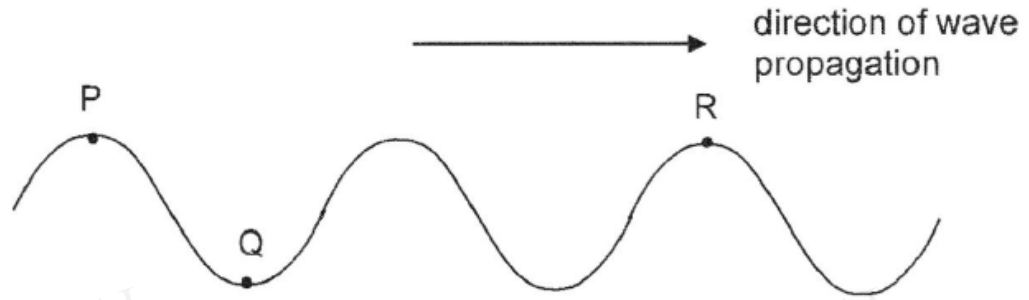


Fig. 23.1

A student made the following statements.

- The particle moves from P to Q after $\frac{1}{2} T$.
- Q is in the same phase as R.
- Wave energy is transferred from position P to R.
- Fig. 23.1 shows a transverse wave.

How many of the above statements is/are correct?

- A 1 B 2 C 3 D 4

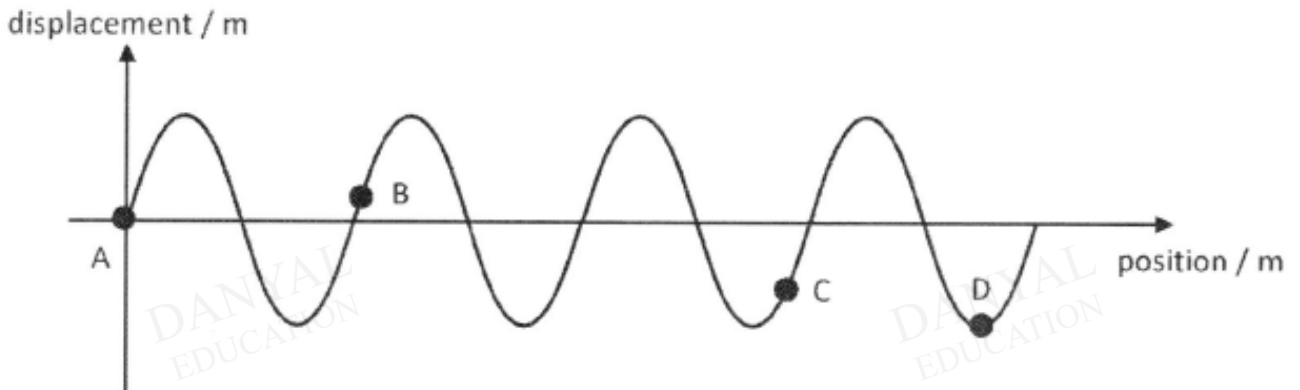
Q4

Which of the following in the table correctly shows examples of transverse and longitudinal waves?

	Transverse	Longitudinal
A	Gamma-rays	Sound
B	Infra-red	Water waves
C	Radio	Light
D	Sound	X-rays

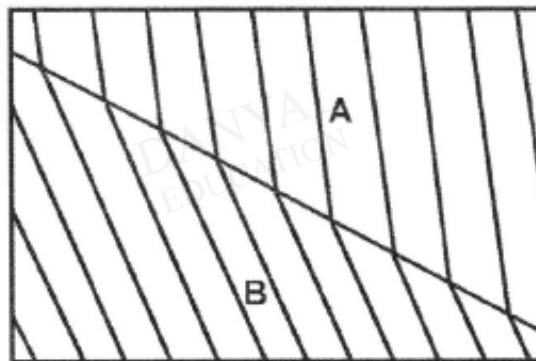
Q5

The graph below shows the displacement of particles on the wave against position. Which particle has the highest speed?



Q6

The diagram below shows water waves travelling from region B to region A.

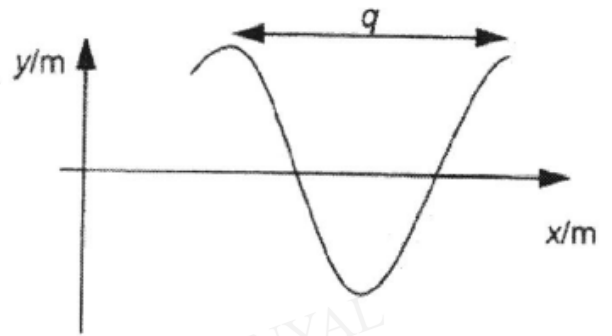
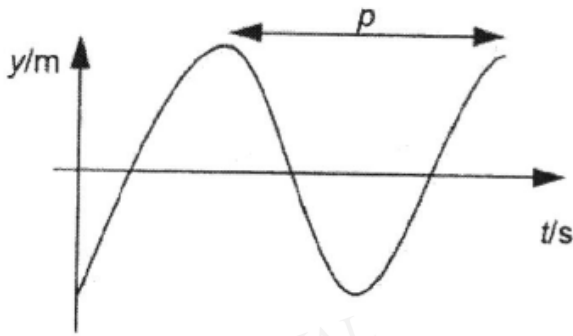


Which of the following statements is **true**?

- A The frequency of the waves in region A is smaller than in region B.
- B The direction of the waves has changed because of the change in speed.
- C Region B is deeper than region A.
- D The speed of the waves in region A is slower than in region B.

Q7

A particular wave can be represented by the following graphs:

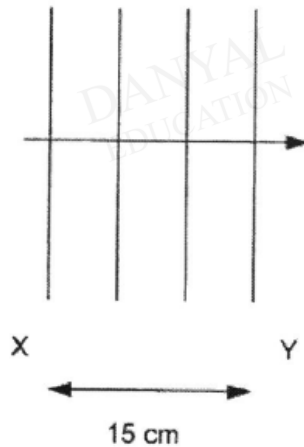


What is the speed of the wave?

- A** q/p **B** p/q **C** pq **D** $1/pq$

Q8

The figure below shows a parallel water wave travelling in a ripple tank. The wavefront at X travels to Y in 5.0 s.

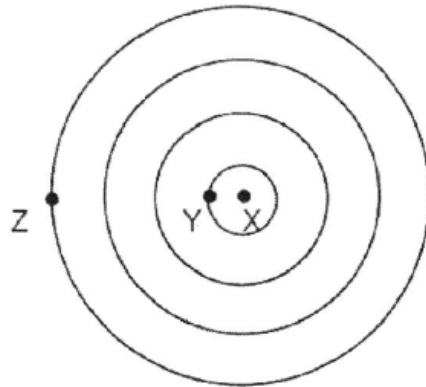


What is the frequency of the water?

- A** 0.6 Hz **B** 1.7 Hz **C** 3.0 Hz **D** 5.0 Hz

Q9

The diagram shows circular wavefronts moving from X to Z.



(diagram not drawn to scale)

The distance between Y and Z is 1.2 m and the frequency of the dipper at X is set at 15 Hz.

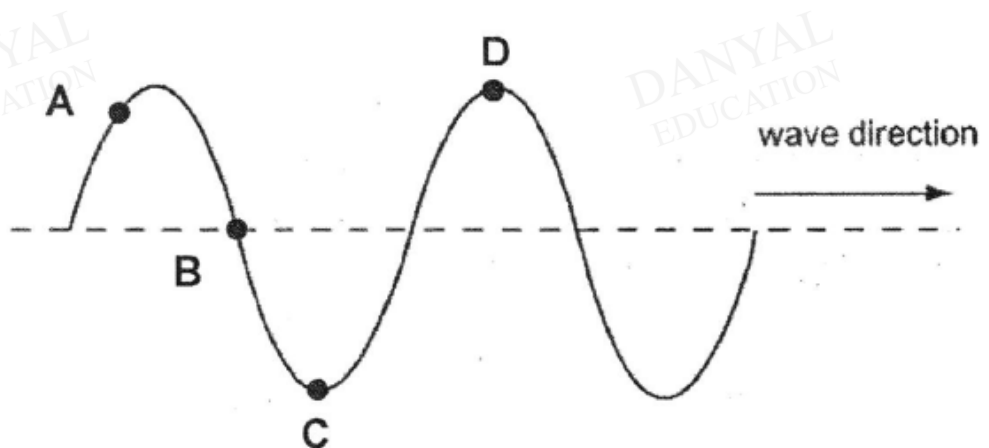
What is the speed of the wave?

- A 4.5 m/s
- B 6.0 m/s
- C 12.5 m/s
- D 18.0 m/s

Q10

The diagram shows a water wave moving in the direction shown.

At which point is the water moving upwards with maximum speed?



Answers

General Wave Properties Test 1.0

Q1 A

Q2 C

Q3 B

Q4 A

Q5 A

Q6 B

Q7 A

Q8 A

Q9 B

Q10 B

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