Wave Motion
Video Activities File

1

Question 1 [Introduction to Waves]

In a transverse wave, the motion of the particles is _____ the wave's direction of propagation.

A. perpendicular to

B. along

C. parallel to

D. opposite from

2

Question 1 [Introduction to Waves]

In a transverse wave, the motion of the particles is _____ the wave's direction of propagation.

A. perpendicular to

B. along

C. parallel to

D. opposite from

Answer: A

3

Question 2 [Introduction to Waves]

In a longitudinal wave, the motion of the particles is _____ the wave's direction of propagation.

A. perpendicular to

B. along

C. parallel to

D. opposite from

4

Question 2 [Introduction to Waves]

In a longitudinal wave, the motion of the particles is _____ the wave's direction of propagation.

A. perpendicular to

B. along

C. parallel to

D. opposite from

Answer: C

Why not B "along"?
Strictly speaking, "parallel" oscillatory motion of particles in longitudinal waves is back-&-forth motion whereas there is some ambiguity in "along".

5

Question 3 [Introduction to Waves]

Any two shortest points in a wave that are in phase are termed as....

A. wavelength

B. amplitude

C. wave distance

6

Question 3 [Introduction to Waves]X

Any two shortest points in a wave that are in phase are termed as....

A. wavelength

B. amplitude

C. wave distance

Answer: A

7

Question 3 [Introduction to Waves]

Motion that is repeated at regular intervals is termed as

A. vibration

B. oscillation

C. ventilation

D. periodic motion

8

Question 3 [Introduction to Waves]
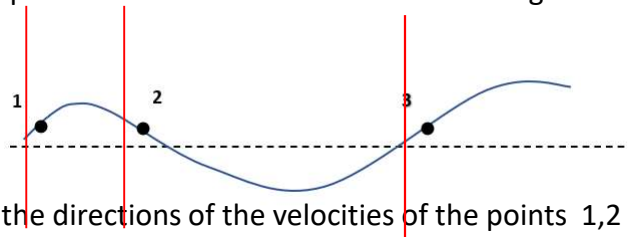
Motion that is repeated at regular intervals is termed as

A. vibration

B. oscillation

C. ventilation

D. periodic motion

Answer: D

9

Question 1 [Graphs Of Progressive Waves & Intensity]

The diagram below shows the shape of a transverse wave along a string at a particular instance. The wave is travelling from left to right.
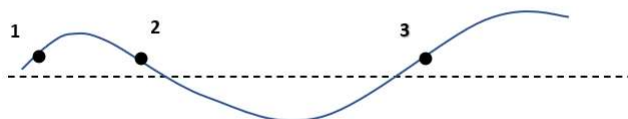

What are the directions of the velocities of the points 1,2 and 3 on the string?

A. 1. → 2. → 3. →

B. 1. ↓ 2. ↑ 3. ↓

C. 1. ↓ 2. ↓ 3. ↓

D. 1. → 2. ← 3. →

10

Question 1 [Graphs Of Progressive Waves & Intensity]

The diagram below shows the shape of a transverse wave along a string at a particular instance. The wave is travelling from left to right.

What are the directions of the velocities of the points 1,2 and 3 on the string?

A. 1. → 2. → 3. →

B. 1. ↓ 2. ↑ 3. ↓

C. 1. ↓ 2. ↓ 3. ↓

D. 1. → 2. ← 3. →

Answer: B

11

Question 2 [Graphs Of Progressive Waves & Intensity]

The intensity of a sound wave emitted by a point source is inversely proportional to the square of the distance from the source.

The amplitude of the wave is found to be $8x$ at a distance r from the source.

Which one of the following is the amplitude at a distance of $2r$ from the point source?

A. x

B. $8x$

C. $4x$

D. $2x$

12

Question 2 [Graphs Of Progressive Waves & Intensity]

The intensity of a sound wave emitted by a point source is inversely proportional to the square of the distance from the source.

The amplitude of the wave is found to be $8x$ at a distance r from the source.

Which one of the following is the amplitude at a distance of $2r$ from the point source?

A. x

B. $8x$

C. $4x$

D. $2x$

Answer: C

$$\text{Intensity} \propto \frac{1}{(\text{distance})^2} \quad \text{--- Equation(1)}$$

$$\text{Intensity} \propto (\text{amplitude})^2 \quad \text{--- Equation(2)}$$

$$\Rightarrow \text{amplitude} \propto \frac{1}{\text{distance}}$$

$$\Rightarrow \frac{\text{amplitude at } 2r}{\text{amplitude at } r} = \frac{r}{2r}$$

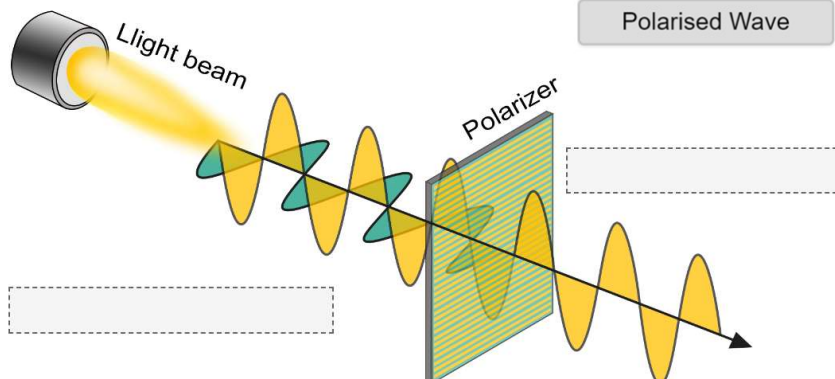$$\Rightarrow \text{amplitude at } 2r = \frac{1}{2}(8x) = 4x$$

13

Question 1 [Polarisation]

Before we move on, let's answer this question! Identify and drag the correct polarised and unpolarised waves to its respective area.
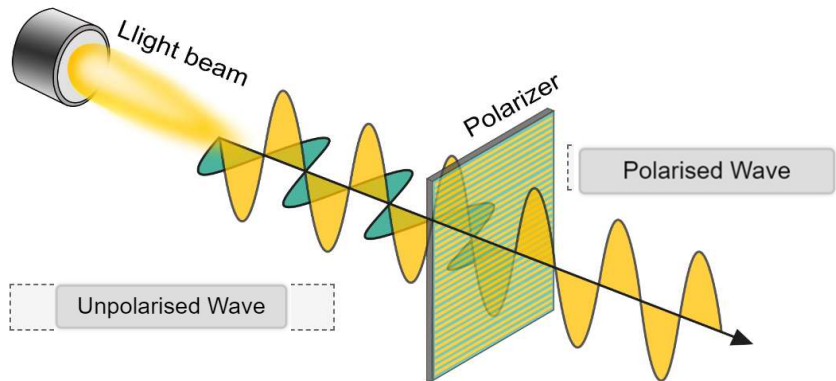

Unpolarised Wave

Polarised Wave

Llight beam

Polarizer

14

Question 1 [Polarisation]

Before we move on, let's answer this question! Identify and drag the correct polarised and unpolarised waves to its respective area.

Llight beam

Polarizer

Polarised Wave

Unpolarised Wave

15

Question 2 [Polarisation]

Two polarisers are stacked onto each other and their polarisation planes are aligned at 30 degrees to each other.

As a result, unpolarised light cannot pass through the two polarisers.

A. True

B. False

16

8

Question 2 [Polarisation]

Two polarisers are stacked onto each other and their polarisation planes are aligned at 30 degrees to each other.

As a result, unpolarised light cannot pass through the two polarisers.

A. True

B. False

Answer: B

Unpolarised light cannot pass through only when the polarisation planes are 90∘ to each other.

17