

JEE MAIN WAVES — PRINCIPLE OF SUPERPOSITION OF WAVES — PYQS

Max. Marks: 8

Questions: 2

Section A (MCQ)

- Q.1** The amplitude and phase of a wave that is formed by the superposition of two harmonic travelling waves, $y_1(x, t) = 4\sin(kx - \omega t)$ and

$$y_2(x, t) = 2\sin\left(kx - \omega t + \frac{2\pi}{3}\right), \text{ are:}$$

(Take the angular frequency of initial waves same as ω) [JEE Main 2025 (Online) 8th April Evening Shift]

- (1) $\left[\sqrt{3}, \frac{\pi}{6}\right]$ (2) $\left[2\sqrt{3}, \frac{\pi}{6}\right]$
(3) $\left[6, \frac{2\pi}{3}\right]$ (4) $\left[6, \frac{\pi}{3}\right]$

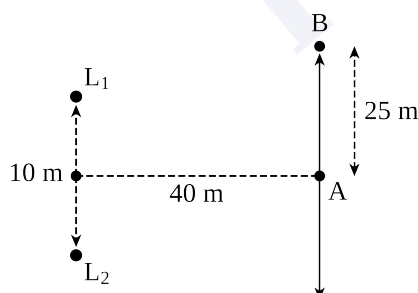
Scan or tap for the
full solution



Section B (Numerical)

- Q.2** Two loudspeakers (L_1 and L_2) are placed with a separation of 10 m, as shown in figure. Both speakers are fed with an audio input signal of same frequency with constant volume. A voice recorder, initially at point A, equidistant from both loudspeakers, is moved by 25 m along the line AB while monitoring the audio signal. The measured signal was found to undergo 10 cycles of minima and maxima during the movement. The frequency of the input signal is _____ Hz (Speed of sound in air is 324 m/s and $\sqrt{5} = 2.23$)

[JEE Main 2026 (Online) 22nd January Morning Shift]



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ANSWER KEY

Section A (MCQ)

Ques.	1									
Ans.	2									

Section B (Numerical)

Ques.	2						
Ans.	600						