

Question 9017-12
0.52-35%

Vibrations with frequency 600 Hz are set up on a 1.33-m length of a string that is clamped at both ends. The speed of waves on the string is 400 m/s. How far from either end of the string does the first node occur?

- (a) 0.33 m
- (b) 0.49 m
- (c) 0.75 m
- (d) 0.17 m
- (e) 0.66 m

Question 9117-12
0.57-42%

A point source emits sound waves which are reflected from a metal plate with air in between, as shown in figure 3. Standing waves are produced in between the source and the plate. If the points R, S and T are three successive nodes, what is the frequency of the wave? [Speed of sound in air is 342 m/s].

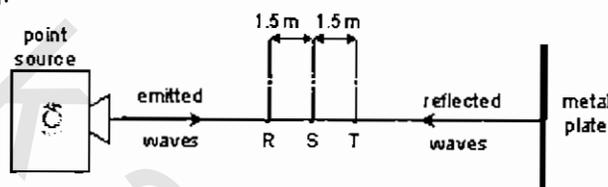


Figure 3

- (a) 312 Hz.
- (b) 158 Hz.
- (c) Not enough information.
- (d) 225 Hz.
- (e) 114 Hz.

Question 9217-12
0.40-24%

A 50 cm long string with a mass of 0.01 kg is stretched with a tension of 18 N between two fixed supports. What is the resonant frequency of the longest wavelength on this string?

- (a) 50 Hz.
- (b) 312 Hz.
- (c) 30 Hz.
- (d) 9.8 Hz.
- (e) 150 Hz.

17 All sections

Question 93

17

Transverse waves, with fixed amplitude, are being generated on a rope under constant tension. When the frequency of the wave is increased, which one of the following statements is correct?

- (a) The wavelength increases and the transmitted power is the same
- (b) Both the wavelength and the linear mass density decrease
- (c) Both the wavelength and the maximum transverse speed increase
- (d) The wavelength decreases and the transmitted power increases
- (e) The maximum transverse speed is the same and the transmitted power increases