

NCERT Physics Chapter-15 Q7

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QUESTION 7:

A hospital uses an ultrasonic scanner to locate tumors in a tissue. What is the wavelength of sound in the tissue in which the speed of sound is 1.7 km/s? The operating frequency of the scanner is 4.2 MHz.

SOLUTION:

Input Parameter	Value	Description
c	1.7×10^3	Speed of Wave
f	4.2×10^6	Frequency
A	1	Wave Amplitude
T	2.38×10^{-7}	Time period
$s(t)$	$s(t) = A \cos(2\pi ft + \phi)$	Wave equation
λ	$\frac{c}{f}$	Wavelength (to be found)

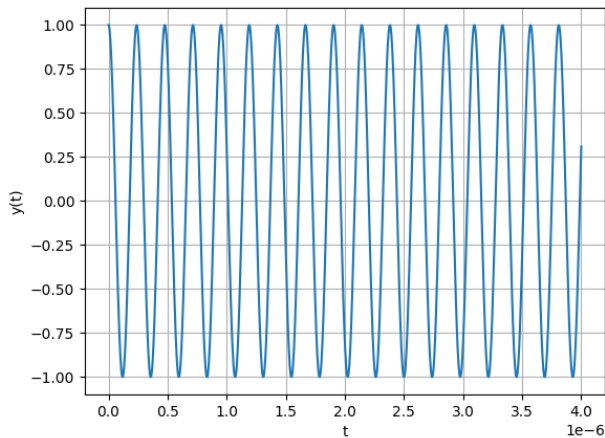


Fig. 1. Waveplot