QUESTION:

The distance travelled by wave is 140 m during which it completes 200 vibrations. If the fequency of vibration of the wave is 500 Hz,find the velocity of the wave.

SOLUTION:

As wave completes 200 vibration during it travels the distance l=140 m, the wavelength is

$$\lambda = \frac{l}{200} = 0.7\,m \ .$$

Hence, the velocity of the wave is $\upsilon = \nu\lambda$, where ν is the frequency of the wave.

$\upsilon = 500 \cdot 0.7 = 350\ m/s$

ANSWER:

350 m/s