FREE OSCILLATIONS →

In an ideal simple harmonic motion (S.H.M), the displacement follows a sinusoidal curve. The amplitude of oscillation remains constant for an infinite time. This is because there is no loss of energy and thus total energy remains constant. Such oscillations are called Free oscillation.

However in actual practice, the simple harmonic motion always experiences frictional or resistive force due to which energy of free oscillator is continuously lost and consequently the amplitude of vibration decrease gradually and ultimately the body comes to rest. Hence, decay of amplitude with time is called damping. Such oscillation are called "damped harmonic oscillations" In order to maintain the amplitude constant, an external periodic force is applied. These forced vibrations initially gain the frequency equal to its natural frequency and then after short time the oscillator acquires the frequency of the impressed periodic force.

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