15 Lecture - PHY101

Important Mcqs

Which of the following is	a necessary condition	for simple	harmonic motion?
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- A) Force is directly proportional to velocity
- B) Acceleration is directly proportional to position
- C) Velocity is directly proportional to position
- D) Acceleration is directly proportional to velocity

Answer: B) Acceleration is directly proportional to the position

Which of the following is true for the displacement of a simple harmonic oscillator?

- A) It is directly proportional to the velocity of the oscillator.
- B) It is directly proportional to the acceleration of the oscillator.
- C) It is proportional to the square of the velocity of the oscillator.
- D) It is proportional to the square of the acceleration of the oscillator.

Answer: B) It is directly proportional to the acceleration of the oscillator.

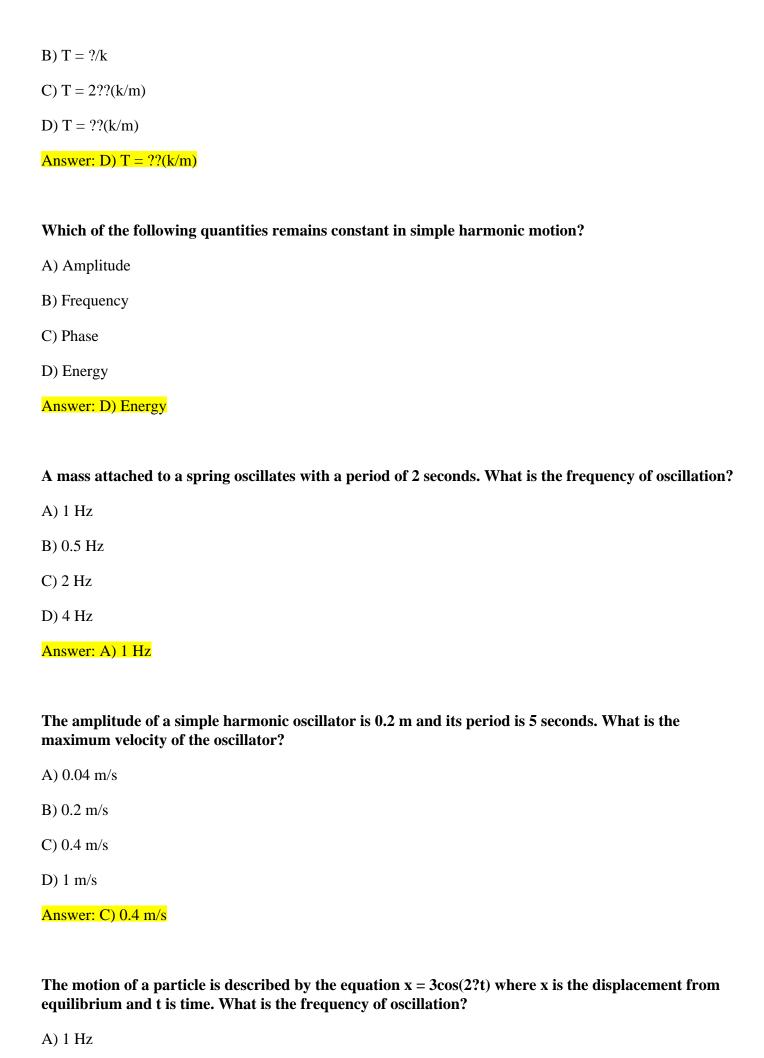
A simple pendulum oscillates with a period T. If the length of the pendulum is doubled, what is the new period of oscillation?

- A) T/2
- B) T
- C) 2T
- D) 4T

Answer: C) 2T

The restoring force in a simple harmonic oscillator is given by F = -kx, where x is the displacement from equilibrium and k is the spring constant. What is the period of oscillation?

A) T = 2?/k



B) 2 Hz C) 3 Hz D) 4 Hz Answer: B) 2 Hz The kinetic energy of a simple harmonic oscillator is maximum when the displacement is: A) At the equilibrium position B) At the maximum displacement from the equilibrium C) At the minimum displacement from equilibrium D) The kinetic energy is the same at all points Answer: A) At the equilibrium position The period of a simple pendulum of length L and mass m is given by T = 2??(L/g), where g is the acceleration due to gravity. If the length of the pendulum is doubled, what is the new period of oscillation? A) T B) 2T C) T/2 D) 4T

Answer: B) 2T