Physics - ICS Part 1 Physics Chapter 7 Short Questions Test

Q1. Define vibratory motion.

Ans 1: The to and fro motion of a body about a fixed point is called the vibratory or oscillatory motion.

Q2. What is sharpness of resonance?

Ans 1: The amplitude s well as its sharpness< both depend upon the damping. Smaller the damping, greater will be the amplitude and more sharp will be the resonance.

Q3. Define driven harmonic oscillator and damped oscillations.

Ans 1: Damped Oscillations: TheOscillations in which the amplitude decreases steadily with time are called damped oscillations.

Driven harmonic oscillator: The physical system undergoing forced vibrations is known as driven harmonic oscillator.

Q4. What is the total distance travelled by an object moving with SHM in a time equal to its period, if its amplitude is A?

Ans 1: The total distance travelled by an object moving with SHM in its time period is 4A, where A is amplitude of vibration.

Q5. Write one advantage and one disadvantage of resonance.

Ans 1: Advantage: A swing is a good example of mechanical resonance. If a series of regular pushes are given to the swing , its motion can be built up enormously .
Disadvantages: The rhythmic march of column of soldiers on a bridge of long span might set up oscillations of dangerously large amplitude in the bridge structure. Bridge can be collapsed due to violent resonance oscillations. They are advised break their steps.

Q6. Differentiate between damped oscillation and undamped oscillations.

Ans 1: Damped Oscillation: The oscillations in which the amplitude decreases steadily with time are called damped oscillations. For Example, shock absorber of a car and motion of any microscopic system.
Undamped Oscillations: The oscillations in which the amplitude remains same with time are called undamped oscillations. For Example, oscillations in an ideal simple pendulum.

Q7. If a heavy and light masses of same size are set into vibration, which of them will stop first?

Ans 1: Light mass will stop first.
The damping effect for the light mass due to air resistance is much greater than the heavy mass. Therefore, it will stop first.

Q8. Define frequency and give its unit.

Ans 1: Number of vibrations per second is called frequency .
Its S.I unit is Hz.

Q9. Define Simple Harmonic Oscillator and driven harmonic oscillator.

Ans 1: The oscillator motion taking place under the action of restoring force is known as simple harmonic motion.A body such as simple pendulum , executing SHM is called simple harmonic oscillator
A physical system undergoing forced vibrations is know as driven harmonic oscillator.

Q10. Describe free vibrations.

Ans 1: A Body is said to be executing free vibrations when it oscillates without the interference of an external force.