

## Physics - ICS Part 1 Physics Chapter 7 Short Questions Test

Q1. Explain relation between total energy, potential energy and kinetic energy for a body in simple harmonic motion.

**Ans 1:** When the K.E of the mass is maximum, the p.e of the spring is zero. Conversely, when the P.E of the spring is maximum, the K.E of the mass is zero. The interchange occurs continuously from one form to the other but the total energy remains conserved.

Q2. Described some common phenomena in which resonance plays an important role.

Ans 1: Tuning of a radio: It is a good example of electrical resonance. For tuning we turn the knob of a radio which changes the natural frequency of electrical circuit of receiver until it becomes equal to the frequency of the transmitter. So resonance is produced and energy absorption is maximum. Hence a station is tuned and we can hear the transmission of desired station.

Microwave oven: The waves produced in this type of oven have a wavelength of 12cm at a frequency of 2450 Mhz at this frequency the waves are absorbed due to resonance by water and fat molecules in the food resulting in efficient and evenly heating and cooking of food.

Q3. Why the enthalpy of neutralization has the same value for any strong acid with any strong base?

Ans 1:

Q4. The amplitude of simple pendulum should be small, Why?

**Ans 1:** If amplitude of simple pendulum is large then force of air friction changes its time period, Therefore amplitude should be kept small.

Q5. 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 known as driven harmonic oscillator.

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.

Q8. Describe free vibrations.

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

Q9. What are damped oscillations?

**Ans 1:** The oscillations in which the amplitude decreases steadily with time are called damped oscillations. Fro example

- The shock absorber of a car
- Motion of any microscopic system

Q10. Why soldiers are advised to break their steps when marching on a bridge?

**Ans 1:** The column of soldiers, while marching on a bridge of long span is advised to break their steps. Because their rhythmic march might set up oscillation of dangerously large amplitude in the bridge structure.