XI Physics Worksheet

Time: 30 min **Chapter#14: Oscillations-01** **Full Marks: 20**

Instructions:

1. All questions are compulsory.

2. Please give the explanation for the answer where applicable.

Q1 - If the length of a simple pendulum is doubled what will be its new time period?

(1 Mark)

Q2 - In which condition the motion of a simple pendulum is simple harmonic?

(1 Mark)

Q3 - A pendulum clock is observed to give correct time at the equator. What will happen if the same pendulum clock is taken to the pole of the earth?

(1 Mark)

Q4 - A mass m is vertically suspended from a spring of negligible mass. The system oscillates with a frequency v. Find the frequency of the system if a mass 4m is suspended from the same spring?

(2 Marks)

Q5 - If the period of oscillation of mass m suspended from a spring is 2s, find the period of mass 4m?

(2 Marks)

Q6 - A vertical U-tube of uniform cross section contains water upto a height of 0.5m. If water on one side is depressed a little and then released it performs SHM up and down. Calculate (a) time period and (b) angular frequency of the vibration.

(2 Marks)

Q7 - At what distance from the mean position is the kinetic energy in simple harmonic oscillaton equal to P.E ?

(3 Marks)

Q8 - A simple pendulum of length l and having a bob of mass m is suspended in a car. The car is moving on a circular track of radius r with a uniform speed v. If the pendulum makes small oscillations in a radial direction about its equilibrium position what will be its time period?

(3 Marks)

Q9 - A mass attached to a spring is free to oscillate, with angular frequency w, in a horizontal plane without friction or damping. It is pulled to a distance x_0 and pushed towards the centre with a velocity v_0 at a time t=0. Determine the amplitude of the resulting oscillations in terms of the parameters w, x_0 and v_0.

(5 Marks)