Premier University

Department of Computer Science and Engineering

CSE 1st semester

Course Title: Engineering Physics – I

Course No.: PHY-101

Regular Assignment

1. What do you mean by Simple Harmonic Motion of a particle?

2. Write some characteristics of Simple Harmonic Motion?

3. Derive the differential equation of Simple Harmonic Motion.

4. Solve the differential equation of Simple Harmonic Motion.

5. Find the equation of displacement, velocity and acceleration of a particle executing Simple Harmonic Motion.

6. Show that, the total energy of simple harmonic motion is $\frac{1}{2}KA^2$.

7.A body is vibrating with simple harmonic motion of amplitude 15 cm and frequency 4hz.Compute

(a)The maximum values of the acceleration and velocity and (b) the acceleration and velocity when the displacement is 9 cm.

8.For a The equation of progressive wave is given by

$y = 10\sin(0.7x - 250t)$, where x and y in cm and t is in seconds.

Calculate the:

(a) Amplitude

(b) Frequency and

(c) Velocity of the wave

9.The equation of progressive wave is given by

$y = 10\sin\frac{2\pi}{100}(36000t - 20)$, where *y* in cm and *t* is in seconds.

Calculate the:

(a) Amplitude

(b) Wave velocity

(c) Wavelength,

(d) frequency and

(e) Time periods.