United International University

School of Science and Engineering

Quiz#03; Year 2020; Semester: Fall
Course: PHY 105; Title: Physics
Full Marks: 20; Section: C; Time: 20 minutes

Name:	ID:	Date:

1. What is Transverse wave? Draw figure, if necessary. Give three examples. **1.5**

2. The DHM equation is $x = Ae^{-\alpha t}\cos(\omega' t + \phi)$, What are A, α, ω' and ϕ? Draw a graph showing all types of DHMs including SHMs. Write down the mathematical equation for ω'. **1.5**

3. The equation of a traveling wave is $y = 5.0\sin\pi(-0.15x + 300t)$. Calculate (i) the amplitude of the vibrating particle, (ii) wave velocity, (ii) wave length, (iv) frequency and (v) time period. **3**

4. A body oscillates with SHM according to the progressive equation $x = 12\sin(\frac{2\pi t}{10} + \frac{\pi}{4})$. Find the wavelength. **1**

5. Find whether the discharge of capacitor through the following inductive circuit is oscillatory. C = 0.01μF, L = 100mh, R=200 Ω. If Oscillatory, find the frequency of oscillation and resonant frequency. **3**