BABCOCK UNIVERSITY, ILISHAN REMO, OGUN STATE

MID-SEM EXAM **PHYS 101**

2016/17 Session First Semester **g= 9.8m/s^2** 12/15

ANSWER ALL

1. Which of the following are standard quantities? (a) Mass, Wight, time (b) mass, impulse, Time (c) Mass, Feet, Time (d) Mass, length, Time.
2. Identify the dimensions of momentum and Force from the following? (a) $ML^3, ML^{-1}T^2$ (b)$ML^{-1}T^2, ML^{-3}$ (c) $ML^{-2}, ML^{-1}T^2$ (d) MLT^{-1}, MLT^{-2}.
3. A particle moves along the x axis in such a way that its position is given by: x(t) $7.8+9.2t - 2.1t^3$. What is the velocity of the particle at t = 3.5s? (a) $-68ms^{-1}$ (b) $-65ms^{-1}$ (c) $-86ms^{-1}$ (d) $-67ms^{-1}$
4. A worker drops a wrench down the elevator shaft of a tall building. Where is the wrench 1.5s later? (a) 10m (b) 11m (c) 12m (d) 13m
5. During a storm, a crate of crepe is sliding across a slick, oily parking lot through a displacement d= (-3.0m)î while a steady wind pushes against the crate with a force F = (2.0N) î+ (-6.0N)ĵ. How much Work does this force do on the crate during the displacement? (a) 6J (b) 4J (c) 12J (d) 18J
6. What force will cause an extension of 5cm on a spring with stiffness constant of 0.05Nm-1? (a) 0.25N (b) 0.025N (C) 5N (d) 0.0025N.
7. If the simple pendulum spends 25 s to complete 20 oscillations, what is the period of its oscillation? (a) 2s (b) 1.25s (c) 2.5s (d) 0.8
8. A simple Harmonic motion is described by the equation, $y = 2sin(2\pi + u)$. What is the amplitude of the motion? (a) 2π m (b) 2/3 m (c) 2.10m (d) 2 m
9. Calculate the angle in degrees between A 2î + 2ĵ - k and B = 6î-3ĵ + 2k. (a) 79° (b) 101^0 (c) 169 (d) 37^0
10. A body of mass 1.5kg is whirled in a circle by a string of length 20cm. If the period of revolution is 0.5s. Calculate the force on the body by the string. (a) 47.4n (b) 31.6N (c) 15.8N (d) 63.2N