

Department of Physics National Dong Hwa University, 1, Sec. 2, Da Hsueh Rd., Shou-Feng, Hualien, 97401, Taiwan **General Physics-I, Quiz 4** PHYS1000AA, Fall Semester-104 2015-12-01, Tuesday

St. ID:_____, Name:_____

Chapter .14-16, Serway; ABSOLUTELY NO CHEATING! Please write down the answers on the blank space or on the back of this paper. Answer should be in english. [] indicates the question points.

Q1. (a) Suppose you are driving a submarine in Pacific Ocean, calculate the absolute pressure at an ocean depth of 2.0 km. Let the density of seawater is 1000kg/m^3 and the air above exerts a pressure of 100.0 kPa. (b) In this depth, what pressure/ force will be exerted by the water on a circular window of radius 2.5 m of the submarine? [20+10 = 30]



Q2. (a) Suppose a 10.0-kg object oscillates at the end of a vertical spring that has a spring constant of 2.0×10^4 N/m. Let there is an elastic oscillation (SHO) produced in first few second, calculate the period of motion if amplitude is 4.0 m. (b) Now consider the effect of air friction and if the effect of air resistance is represented by the damping coefficient b = 3.0×10^4 N. s/m. Calculate the frequency of the damped oscillation. [20+20 = 40]



Q3. (a) Suppose one of your guitar string length and mass are 1.5 m and 50 g respectively. If you produce a transverse pulse by plucking one end of this string and the pulse makes four trips down and back along the string in 0.8 s, find out the tension produced in the string? (b) What type of wave will be produced by the Guitar (Sound)? [25+5=30]

