國立東華大學

Department of Physics
National Dong Hwa University, 1, Sec. 2,
Da Hsueh Rd., Shou-Feng, Hualien, 974, Taiwan

General Physics I, Quiz 4
PHYS10400, Class year 98
11-19-2009

SN:_____, Name:_____

Chapter 12-15, Serway; ABSOLUTELY NO CHEATING!
Please write the answers on the blank space or on the back of this paper to save resources.

Chap.14 - Prob.59
A U-tube open at both ends is partially filled with water (Fig. P14.59a). Oil having a density 750 kg/m^3 is then poured into the right arm and forms a column L = 5.00 cm high (Fig. P14.59b). (a) Determine the difference h in the heights of the two liquid surfaces. (b) The right arm is then shielded from any air motion while air is blown across the top of the left arm until the surfaces of the two liquids are at the same height (Fig. P14.59c). Determine the speed of the air being blown across the left arm. Take the density of air as 1.29 kg/m^3.

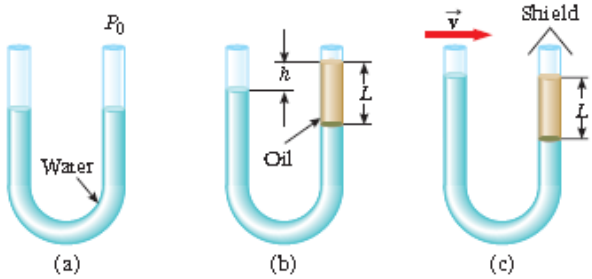

Figure P14.59

Chap.15 – Prob.59
A block of mass m is connected to two springs of force constants k_1 and k_2 in two ways as shown in Figures P15.59a and P15.59b. In both cases, the block moves on a frictionless table after it is displaced from equilibrium and released. Show that in the two cases the block exhibits simple harmonic motion with periods

(a) $T = 2\pi\sqrt{\frac{m(k_1+k_2)}{k_1k_2}}$ and (b) $T = 2\pi\sqrt{\frac{m}{k_1+k_2}}$

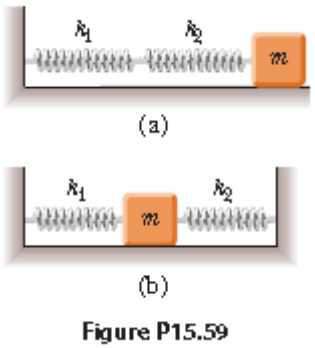

Figure P15.59