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General Physics-I, Quiz 2
PHYS1000AA, Fall Semester-103
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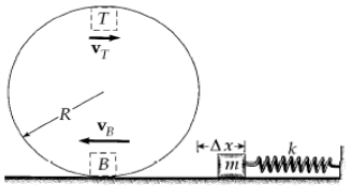
St. ID:_____, Name:_____

Chapter 7-9, Serway; ANY TYPES OF CHEATING WILL MAKE YOU FAIL!
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.

1. Suppose you start running from the A108 room of physics department to the central library and then comeback to A108 with your physics textbook. If your total traveling time and distance are 10 min and 0.5km respectively. (a) How much work have you done? Now let your book of mass 2kg is held in 300cm above the ground and then you drop it down. (b) Calculate the gravitational potential energy of the book before falling down started/at initial state. (c) If it covers 1m distance down per second uniformly what will be the kinetic energy of the book (d) what result do you expect after 3 sec? [5+15+15+5=40]

2. A block of mass 1 kg is pushed against a horizontal spring of negligible mass until the spring is compressed a distance x. The force constant of the spring is 500 N/m. When it is released, the block travels along a frictionless, horizontal surface to point B, the bottom of a vertical circular track of radius R = 500cm, and continues to move up the track. The speed of the block at the bottom of the track is V_B =12.0 m/s, and the block experience an average friction force of 7.00 N while sliding up the track. (a) What is x? (b) What speed do you predict for the block at the top of the track? [10+20=30]



3. Suppose you are driving a car with speed 80km/hr in Hualien city and suddenly earthquake is started. Now let your car become imbalanced and strike to another car standing beside the road. After the collision if both cars are in motion and if your car moves with the speed 40 km/hr in 45° direction with respect to your original line of motion, what will be the velocity of other car. Is it possible to avoid the collision using center of mass control sensor in your car? (Use the same mass of both cars). [25+5=30]

You may use the backside of the paper