Phys 111 General Physics I
Final Exam December 15, 2010

Name

**Show all work! Explain completely! Use units! Start with the original equation! Good luck!**

Section A: Cumulative
Part I: Multiple Choice (2 points each)

C 1. How many meters is 12.5 centimeters?
A. 1250 B. 12500
C. 0.125 D. 0.0125

D 2. Which of the following equations can be used to find instantaneous velocity at some time t?
A. $v = \Delta x/\Delta t$ B. $\Delta x = v_0 t + \frac{1}{2} at^2$
C. $a = \Delta v/\Delta t$ D. all three can be

D 3. The potential energy of a mass $m$ in a gravitational field with acceleration $g$ when lifted a distance $h$ above the zero point of energy is $mgh$. What are the units of energy in SI units?
A. kg $m^2$ B. kg $m^2/s$
C. kg $m/s^2$ D. kg $m^2/s^2$

B 4. A motorist travels for 3 hours at 80 km/h and 2 hours at 100 km/h. What is her average speed for the trip?
A. 85 km/h B. 88 km/h
C. 90 km/h D. 92 km/h

C 5. Can an object's velocity change when its acceleration is constant?
A. no, this is not possible because it is always speeding up
B. no, this is not possible because it is always speeding up or slowing down, but can't turn around
C. yes, this is possible and a rock thrown straight up is an example
D. yes, this is possible, and a car that starts from rest, speeds up, then slows to a stop is an example

A 6. Suppose an object is moving with constant acceleration. Which of the following is an accurate statement about its motion?
A. In equal times its velocity changes by equal amounts.
B. In equal times its distance changes by equal amounts.
C. In equal times it moves equal distances.
D. None of the above are true.

A 7. When an object is released from rest and falls in the absence of friction, which of the following is true?
A. its acceleration is constant B. its velocity is constant
C. neither its acceleration nor velocity is constant D. both its acceleration and velocity are constant

B 8. A car with good tires on a dry road can decelerate at about -5 $m/s^2$ when braking. How long does it take a car traveling 25 m/s to stop under these conditions?
A. 0.2 s B. 5 s
C. 10 s D. 125 s

D 9. How far would the car in question #8 travel while it was stopping?
A. 2.5 m B. 8.25 m
C. 12.5 m D. 62.5 m

C 10. In the SI, the unit of force is the
A. kilogram B. pound
C. Newton D. gram