Physics 1101 Experiment 11 Pre-Laboratory Assignment

Name_____ Instructor name _____

You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.

1. (a) What is the difference between an elastic collision and a completely inelastic collision?
(b) Under what conditions is the conservation of momentum applicable? (4 pts)

2. (a) What is the purpose of leveling the track and adding paper clips to the end of the string?
(b) In this experiment, what do variables in $x1$ and $x2$ stand for? (c) Why might it be necessary to ignore some of the data points just before and just after the collision? (6 pts)

3. For a completely inelastic collision, the fractional change in kinetic energy can be found as a function of the masses of the projectile and target carts only. (a) Show in detail that the fractional change in kinetic energy is given by $\frac{\Delta(KE)}{KE_i} = \frac{(KE_f - KE_i)}{KE_i} = -\frac{M}{(m+M)}$. (b) What is the significance of the negative value for the fractional change in kinetic energy? (10 pts)