**Physics 200 (Stapleton)**

**Momentum and Impulse Quiz Preview**

Conceptual Questions : There will be three or four conceptual questions. Each question will be very similar to a question from one of the three sets of conceptual questions that were assigned in class. Here are the three sources of conceptual questions, in order…

* [Notes: Momentum and Impulse](file:///C%3A%5CUsers%5COwner%5CDocuments%5CMy%20Web%20Sites%5Cmrstapleton2%5CPhysics%20200%5C16-17%20Momentum%20and%20Impulse%202.docx)  -- 3 Conceptual Questions
* [Practice with impulse and momentum](file:///C%3A%5CUsers%5COwner%5CDocuments%5CMy%20Web%20Sites%5Cmrstapleton2%5CPhysics%20200%5C16-17%20Practice%20Problems%20with%20Impulse%20and%20Momentum.doc)   -- 4 Conceptual Questions
* [Momentum/Impulse Wrap-Up and Review](file:///C%3A%5CUsers%5COwner%5CDocuments%5CMy%20Web%20Sites%5Cmrstapleton2%5CPhysics%20200%5C16-17%20Momentum%20and%20Impulse%20Review.docx) – Conceptual questions 1-10 only.

Problems: There will be three or four problems. Each problem will be one of the types below.

* Problem Type 1: For any collision, use the law of conservation of momentum to find a missing mass, velocity, or a change in momentum.

*Example 1: Object A has a velocity of -2m/s, and object B has a velocity of 3m/s and a mass of 10kg. The two objects collide, and afterward the velocities of A and B are 1m/s and 2m/s, respectively. What is the mass of object A. (Solution on the back)*

* Problem Type 2: When a force is exerted on some object, use the relationship between impulse and momentum to find a force, time, velocity, mass, momentum, or a change in momentum.

 *Example 2: A 200kg piano moving at 2m/s in a frictionless environment is shot by a bullet. The bullet exerts an average force of -4,000N on the piano over a time of 0.005 seconds. What is the piano’s velocity after the impact? (Solution on the back)*

* Problem Type 3: For an elastic collision, use the coefficient of restitution formula and the law of conservation of momentum to find two missing quantities: one or two missing masses and/or one or two missing velocities.

*Example 3: Object A has a mass of 3kg and a velocity of 2m/s. Object B has a mass of 5kg. After the objects collide, object A has a velocity of 1m/s. What are the velocities of object B before and after the collision? (Solution on the back)*



