PHYS 211   MWF 9:30-10:20 & 11-11:50 Study Guide for Test #2    Chapters 5-9

Format will be similar to Test #1, consists of regular questions, derivations, and problems.

A. You should know the following:

1. Newton’s three laws of motion.
2. Drawing Free-body diagrams.
3. Solving problems with frictional forces.
4. Solving circular motion problems.
5. Work-Energy theorem.
6. Solving problems using conservation of energy & momentum principles.
7. Hooke’s law.
8. Solving problems using impulse-momentum theorem.
9. Distinguishing elastic collision from inelastic collision.

B. You should be able to define the following: weight, work, power, kinetic energy, potential energy, mechanical energy, conservative, non-conservative forces, momentum, and impulse.

C. The following equations will be provided if needed:

1. Equations of kinematics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. | 2. | 3. | 4. | 5. |
|  |  |  |  |  |

2a. Newton’s 2nd Law: $F\_{net}=ma$ 2b. Frictional forces:  

3. Drag force:  4. Centripetal force: 

5. Kinetic energy:  6. Gravitational Potential energy = 

7. Elastic Potential Energy =  8. $∆U=-W$ 9. $F\left(r\right)=-\frac{dU}{dr}$

10. Work done by a constant force: 

11. Work done by a variable force: 

12. Power:   

13. Impulse: 
Impulse-Momentum Theorem: