Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_

General Physics – Chapter 7 Review Guide/Study Guide

**Section A - Vocabulary**

1. Circular Motion –
2. Tangential Speed (Velocity) –
3. Uniform Circular Motion –
4. Centripetal Acceleration
5. Centripetal Force –
6. Inertia -
7. Gravitational Force –
8. Gravitational Constant –
9. Torque -
10. Rotational Inertia -
11. Black Hole

**Section B – Equations**

1. Centripetal Acceleration
2. Centripetal Force
3. Newton Law of Universal Gravitation
4. Torque

**Section – Conceptual Questions**

1. Describe the path of a moving body whose acceleration is constant in magnitude at all times and it perpendicular to the velocity.
2. Give an example of a situation when an automobile can have a centripetal acceleration but no tangential acceleration.
3. Can a car move around a circular track so that the car has tangential acceleration but no centripetal acceleration – Explain?
4. Explain how mass and distance affects the gravitational forces.
5. A tiny satellite (25 kg) and the International Space Station(250,000 kg) are orbiting at the same distance from the earth – which one has the greater orbital speed?
6. The largest salami in the world, made in Norway, was more than 20 m long. If a hungry mouse ran around the salami’s circumference with a tangential speed of 0.17 m/s, the centripetal acceleration of the mouse was 0.29 m/s2. What was the radius of the salami?
7. The royal antelope of western Africa has an average mass of only 3.2 kg. Suppose this antelope runs in a circle with a radius of 30.0 m. If a force of 8.8 N maintains this circular motion, what is the antelope’s tangential speed?
8. Deimos, a satellite of Mars, has an average radius of 6.3 km. If the gravitational force between Deimos and a 3.0 kg rock at its surface is 2.5 × 10−2 N what is the mass of Deimos?
9. If Mrs. Tomb wants to open a door that is 1.5 m wide and she pushes with a force of 12N at a 35⁰ angle – what is the torque?