## Study Guide-Sem 1 Physics FINAL EXAM

## Be prepared to solve, predict, and analyze the following:

Given distance and time, solve for velocity

Interpret a motion map

Rotate vs revolve

Calculate acceleration, given two speeds or from a force and weight

Potential vs kinetic energy in a car and of falling objects

Calculate speed of falling objects

Rotational speed vs linear speed of circular motion

Predict gravitational force between moving objects

Analyze position vs time graphs

Weight vs mass, in different locations

Predict force, given a block diagram on a frictionless table

Calculate work, given force and distance

Time and position on a graph

Identify the force acting on an object

Identify the correct vector, given a moving object

## **PRACTICE PROBLEMS:**

Calculate the average speed of a car going 50 miles in 30 minutes

If a car speeds up from 0 to 30 m/s in 2s calculate its acceleration rate.

If a car accelerates at  $3m/s^2$  for 4seconds what would be the speed reached at 4 sec?

## **PRACTICE PROBLEMS (cont)**

An apple falls from a tree in an orchard. Assuming gravity is 10m/s<sup>2</sup> what was the speed of the apple after 2 seconds?

A free falling object is constantly accelerating at\_\_\_\_\_

As the car slows down on the highway due to traffic its velocity\_\_\_\_\_ and its acceleration\_\_\_\_\_ (increase/decrease)

The earth \_\_\_\_\_ around its axis and \_\_\_\_\_ around the sun.

Air resistance \_\_\_\_\_\_ the acceleration of a free falling object.

(increase/decrease)

When objects move closer to one another their gravitational force \_\_\_\_\_.(increase/decrease)

If an astronaut weighs 100N on earth his weight will \_\_\_\_\_\_ on the moon.(increase/decrease)