Che 111: Chapter 7 Practice Problems

1. The simplest definition of _energy_____ is that it is the capacity to do work. Work, in this context, may be defined as what is done to move an object against some sort of ___resistance___.
2. The capacity to do work resulting from the ___motion__ of an object is called kinetic energy, KE.
3. The Law of Conservation of Energy states that energy can be neither _created__ nor ___destroyed___, but it can be __transferred_ from one system to another and __change____ from one form to another
4. Potential energy (PE) is a(n) __stored__ form of energy an object possesse by virtue of its ___position___.
5. A change that leads to ___heat___ energy being released from the system to the surroundings is called exothermic.
6. For each of the following changes, describe whether

   (1) kinetic energy is being converted into potential energy,

   (2) potential energy is being converted into kinetic energy, or

   (3) kinetic energy is transferred from one object to another.

   (More than one of these changes may be occurring.)

   a) A car in an old wooden roller coaster is slowly dragged up a steep incline to the top of the first big drop. (1)
   b) After the car passes the peak of the first hill, it falls down the backside at high speed. (2)
   c) As it goes down the hill, the car makes the whole wooden structure shake. (3)
   d) By the time the car reaches the bottom of the first drop, it is moving fast enough to go up to the top of the next smaller hill on its own. (1)
   e) Wind turns the arms of a windmill. (3)
   f) The windmill pumps water from below the ground up into a storage tank at the top of a hill. (3), (1)

7. Classify each of the following changes as exothermic or endothermic.
    a. The nuclear reaction that takes place in a nuclear electrical generating plant.

       exothermic
    b. Cooking an egg in boiling water.

       endothermic
    c. The breakdown of plastic in the hot sun.

       endothermic