Physics Chapter 5

Vocabulary Search

**Part One. Vocabulary**

**Directions:** *Match the following vocabulary terms to their definitions*

Work Position Power Kinetic Energy Mechanical Energy

Work-Kinetic Energy Theorem Spring Constant Potential Energy

Gravitational Potential Energy Elastic Potential Energy Velocity

Conservation of Energy

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ done on an object is equal to the force times the displacement times the cosine of the angle between them.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the net work done by all the forces acting on an object is equal to the change in the object’s kinetic energy.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a parameter that is a measure of a spring’s resistance to being compressed or stretched.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the potential energy associated with an object’s position relative to a gravitational source.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ depends on both the object’s speed and mass and is associated with an object in motion.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the energy associated with an object because of its interaction with the environment.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the sum of the kinetic energy and all forms of potential energy in a system.
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a quantity that measures the rate at which work is done or the rate of energy transfer by any method.
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the energy stored in any deformed elastic object, such as a compressed spring or stretched rubber band.
10. The amount of kinetic energy a moving object has depends on its mass and its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. The potential energy of an object depends on its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. The law of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ states that energy cannot be created or destroyed.

**Part B. Concept Review**

**Directions:** *Complete the following sentences using the correct terms.*

1. For each of the following cases, indicate whether the work done on the second object in each example will have a positive or a negative value.
   1. The road exerts a friction force on a speeding car skidding to a stop
   2. A rope exerts a force on a bucket as the bucket is raised up a well
   3. Air exerts a force on a parachute as the parachutist falls to Earth
2. If a neighbor pushes a lawnmower four times as far as you do but exerts only half the force, which one of you does more work and by how much? Explain. (Hint: Think about the work equation)
3. Determine whether work is being done in the following examples:
   1. A train engine pulling a loaded boxcar initially at rest
   2. a tug of war that is evenly matched
   3. a crane lifting a car
4. What must be true in order for work to occur?

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1. What forms of energy are involved in the following situations?
   1. A bicycle coasting along a level road
   2. Heating water
   3. Throwing a football (more than one type)
   4. Winding the mainspring of a clock
2. What parts of a roller coaster involve conversion from one form of energy to another? Is mechanical energy conserved in these processes?
3. How are energy, power, and time related?