

Physics 1 Exam 2 Concepts

Work and Energy

Kinetic Energy

Potential Energy

Work

Questions

1. Describe a situation in which a force is exerted for a long time but does no work.
2. Work done on a system puts energy into it. Work done by a system removes energy from it. Give an example for each statement.
3. Describe the energy transfers and transformations for a javelin, starting from the point at which an athlete picks up the javelin and ending when the javelin is stuck into the ground after being thrown.
4. Do devices with efficiencies of less than one violate the law of conservation of energy? Explain.

Momentum

Momentum

Impulse

Types of collision

Collisions of 2 point masses

Questions

1. An object that has a small mass and an object that has a large mass have the same momentum. Which object has the largest kinetic energy?
2. An object that has a small mass and an object that has a large mass have the same kinetic energy. Which mass has the largest momentum?
3. How can a small force impart the same momentum to an object as a large force?
4. Under what circumstances is momentum conserved?

Torque and statics

Statics

Torque

Questions

1. Under what conditions can a rotating body be in equilibrium? Give an example.
2. What three factors affect the torque created by a force relative to a specific pivot point?
3. Mechanics sometimes put a length of pipe over the handle of a wrench when trying to remove a very tight bolt. How does this help? (It is also hazardous since it can break the bolt.)
4. How does a pulley enable a person to lift a load as heavy as a piano with little effort?