Answers to selected questions
Chapter 6

Q6 No. That force is perpendicular to the direction of the motion.

Q12 No. The net work done on the block (net energy transferred to the block changing its motion) is equal to the change of its kinetic energy. The work done by the tension in the string is larger to compensate for the energy dissipated by friction.

Q18 Yes. The weight of the crate has been lifted slightly. If it is released, it will fall back and convert the potential energy into kinetic energy.

Q24 Since a pendulum experiences air resistance and friction of moving parts in contact, it will lose mechanical energy and eventually stop swinging.

Q30 Not necessarily. The height that each reaches will depend on the vaulter's strength and ability to work his body as he jumps, and also his skill at converting all of the kinetic energy into potential energy.But if two vaulters are equally skilled, a faster one will generally be able to reach a greater height.

Q36 Yes. When a car accelerates, the force of static friction between the tires (if it were not static friction, the tires would be sliding!) and the road actually increases the mechanical energy of the car.