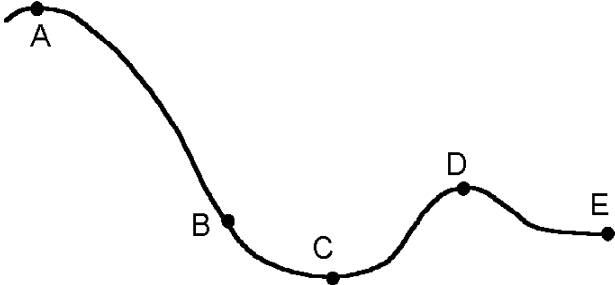## Chapter 4 Quiz

Multiple Choice
Identify the choice that best completes the statement or answers the question.

_____ 1. In the picture of a roller coaster track shown below, the point where the roller coaster car would be travelling the fastest, under negligible friction is
   a. A   d. D
   b. B   e. E
   c. C

_____ 2. In the picture of a roller coaster track shown below, the point where the roller coaster car would be travelling the slowest under negligible friction is
   a. A   d. D
   b. B   e. E
   c. C

_____ 3. A spring-powered SHM oscillator vibrates with a frequency of 9.2 Hz. If the mass used is 45 g, the force constant of the spring is
   a. 0.38 N/m   d. 1.6×10^4 N/m
   b. 2.6 N/m   e. none of the above
   c. 5.2 N/m

_____ 4. As the mass of a SHM oscillator increases
   a. the period of vibration increases
   b. a larger spring constant would be required to prevent a change in the period
   c. the frequency is inversely proportional to the mass
   d. two of A, B, and C
   e. all of A, B, and C

_____ 5. A rocket triples its height but looses half its mass in fuel. The gravitational potential energy of the rocket has changed by a factor of
   a. 0.33   d. 1.5
   b. 0.5   e. 3
   c. 1

Completion
Complete each statement.

6. No work is done when the angle between the force and the displacement is _____.

7. The amount of kinetic energy is proportional to the _____ of the velocity.

8. Gravitational potential energy is due to _____ above Earth's surface.

9. The law of conservation of energy applies to a(n) _____ system.

10. _____ law states that the magnitude of the force exerted by an ideal spring is directly proportional to the distance the spring moves from equilibrium.

Matching

Match the type of energy to the correct description.
a. electromagnetic
b. electrical
c. electric potential
d. gravitational potential
e. chemical potential
f. nuclear potential
g. sound
h. elastic potential
i. thermal

_____ 11. includes radio waves and microwaves
_____ 12. electrons flowing in a wire
_____ 13. energy that causes static cling
_____ 14. propels an arrow from a bow
_____ 15. easily produced by friction

Chapter 4 Quiz
Answer Section

MULTIPLE CHOICE

    1. ANS: C   PTS: 1   REF: K/U   OBJ: 4.4
        STA: EM1.03
    2. ANS: A   PTS: 1   REF: K/U   OBJ: 4.4
        STA: EM1.03
    3. ANS: E   PTS: 1   REF: K/U   OBJ: 4.5
        STA: EM1.01
    4. ANS: E   PTS: 1   REF: K/U   OBJ: 4.5
        STA: EM1.01
    5. ANS: D   PTS: 1   REF: K/U   OBJ: 4.3
        STA: EM1.01

COMPLETION

    6. ANS: 90°

        PTS: 1   REF: K/U   OBJ: 4.1   STA: EM1.01
    7. ANS: square

        PTS: 1   REF: K/U   OBJ: 4.2   STA: EM1.05
    8. ANS:
        elevation
        position

        PTS: 1   REF: C   OBJ: 4.3   STA: EM1.01
    9. ANS: isolated

        PTS: 1   REF: C   OBJ: 4.4   STA: EM1.03
   10. ANS: Hooke's

        PTS: 1   REF: C   OBJ: 4.5   STA: EM1.08

MATCHING

   11. ANS: A   PTS: 1   REF: C   OBJ: 4.4
        STA: EM1.03
   12. ANS: B   PTS: 1   REF: C   OBJ: 4.4
        STA: EM1.03
   13. ANS: C   PTS: 1   REF: C   OBJ: 4.4
        STA: EM1.03
   14. ANS: H   PTS: 1   REF: C   OBJ: 4.4
        STA: EM1.03

15. ANS: I   PTS: 1   REF: C   OBJ: 4.4
     STA: EM1.03