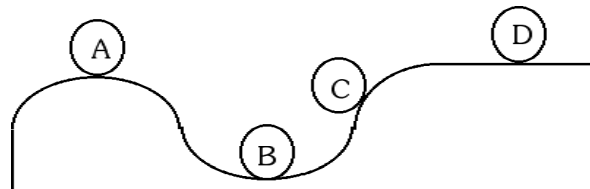# PHY.04 PracTest - Energy

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

Consider balls A-D on the surface shown below.

1. The object in unstable equilibrium is
   A. object A   C. object C   E. none of them
   B. object B   D. object D

2. The sun exerts a force of 4E+28 N on the Earth, and the Earth travels 9.4E+11 m in its annual orbit of the sun. How much work does the sun do on the Earth in one year?
   A. 0 J   B. 9.4E+11 J   C. 4E+28 J   D. 3.8E+40 J

3. The physical advantage of using an inclined plane when elevating a heavy object is that it
   A. reduces the energy required
   B. reduces the force required
   C. reduces the distance the object moves
   D. A and B
   E. A, B, and C
   F. Actually, there is no physical advantage

4. It takes 120 J to push a large box across the floor. Assuming the push is in the same direction as the move, and the force exerted is 30 N, how far did the box move?
   A. 1 m   B. 2 m   C. 3 m   D. 4 m   E. 6 m

5. The gravitational potential energy of an object does NOT depend on
   A. the object's mass   C. the object's speed
   B. the object's height   D. gravitational acceleration

6. A 2 kg object is held above the ground. If it has 40 J of gravitational potential energy, its elevation above the ground is (most nearly)
   A. 1 m   B. 2 m   C. 3 m   D. 4 m   E. 5 m

7. An object that has kinetic energy must be
   A. moving   C. at rest
   B. falling   D. at an elevated position

8. What is the speed of a 2 kg ball that has been accelerated by a 5 N force through a distance of 10 m? (Most nearly.)
   A. 1 m/s
   B. 3 m/s
   C. 5 m/s
   D. 7 m/s
   E. 9 m/s
   F. 11 m/s

Consider a 2 kg object 4 m above the ground traveling at 3 m/s.

9. The potential energy of the object is (most nearly)
   A. 5 J
   B. 8 J
   C. 9 J
   D. 24 J
   E. 72 J
   F. 80 J

10. The kinetic energy of the object is (most nearly)
    A. 5 J
    B. 8 J
    C. 9 J
    D. 24 J
    E. 72 J
    F. 80 J

11. Power can be calculated as the
    A. force on an object times the distance the object moves
    B. force on an object divided by the time the force acts
    C. work done on an object times the time it takes to do that work
    D. work done on an object divided by the time it takes to do that work

12. How much power is required to lift a 2 N rock a distance of 4 m in 8 s?
    A. 1 W
    B. 2 W
    C. 4 W
    D. 8 W
    E. 16 W
    F. 32 W

Consider an ideal toy gun. It takes 2 J of work to push the dart into the gun (compressing the spring). The dart has a mass of 0.01 kg.

13. If the gun is fired, how much kinetic energy will the dart leave the gun with?
    A. 0.02 J   B. 2 J   C. 20 J   D. 200 J   E. 400 J

14. If the gun is fired, how much speed will the dart leave the gun with?
    A. 0.01 m/s   B. 0.02 m/s   C. 10 m/s   D. 20 m/s   E. 400 m/s

PHY.04 PracTest - Energy
Answer Section

MULTIPLE CHOICE

  1. ANS: A   TOP: Equilibrium Marbles   NOT: PT
  2. ANS: A   TOP: Work Definition   NOT: PT
  3. ANS: B   TOP: Work Lab   NOT: PT
  4. ANS: D   TOP: Work Calculation   NOT: PT
  5. ANS: C   TOP: Potential Energy   NOT: PT
  6. ANS: B   TOP: PE Calculations Height   NOT: PT
  7. ANS: A   TOP: Kinetic Energy   NOT: PT
  8. ANS: D   TOP: KE Calculations   NOT: PT
  9. ANS: F   TOP: Kinetic and Potential   NOT: PT
10. ANS: C   TOP: Kinetic and Potential   NOT: PT
11. ANS: D   TOP: Power Definition   NOT: PT
12. ANS: A   TOP: Power Calculation   NOT: PT
13. ANS: B   TOP: Toy Gun Conservation   NOT: PT
14. ANS: D   TOP: Toy Gun Conservation   NOT: PT