1) Energy is measured in the same units as

- A) momentum
- B) power

C) work

D) force

2) A force is applied to a block, causing it to accelerate along a horizontal, frictionless surface. The energy gained by the block is equal to the

A) power applied to the block

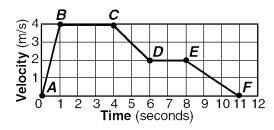
C) momentum given to the block

B) impulse applied to the block

D) work done on the block

Question 3 refers to the following:

The graph below represents the velocity-time relationship for a 2.0-kilogram mass moving along a horizontal frictionless surface.



3) Work is *not* being done on the mass during interval

A) CD

B) EF

C) AB

D) DE

4) The work done in raising an object must result in an increase in the object's

A) heat energy

C) gravitational potential energy

B) internal energy

D) kinetic energy

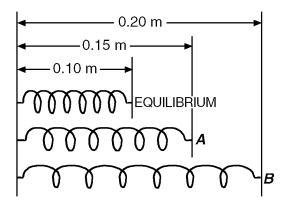
5) As an object is raised above the Earth's surface, the gravitational potential energy of the object-Earth system

A) increases

C) decreases

B) remains the same

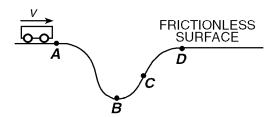
6) A 0.10-meter spring is stretched from equilibrium to position *A* and then to position *B* as shown in the diagram below.



Compared to the spring's potential energy at A, what is its potential energy at B?

- A) the same
- B) four times as great
- C) twice as great
- D) half as great

7) The diagram below represents a cart traveling from left to right along a frictionless surface with an initial speed of *v*.



At which point is the gravitational potential energy of the cart least?

A) A

B) *B*

C) C

D)D

8) An object gains 10. joules of potential energy as it is lifted vertically 2.0 meters. If a second object with one-half the mass is lifted vertically 2.0 meters, the potential energy gained by the second object will be

A) 10. J

B) 5.0 J

C) 2.5 J

D) 20. J

9) A spring of negligible mass with a spring constant of 200 newtons per meter is stretched 0.2 meter. How much potential energy is stored in the spring?

A) 4 J

B) 8 J

C) 40 J

D) 20 J

10) A person does 100 joules of work in pulling back the string of a bow. What will be the initial speed of a 0.5-kilogram arrow when it is fired from the bow?

- A) 50 m/s
- B) 20 m/s
- C) 200 m/s
- D) 400 m/s

11) What is the maximum distance that a 60.-watt motor may vertically lift a 90.-newton weight in 7.5 seconds?

A) 2.3 m

B) 5.0 m

- C) 1100 m
- D) 140 m