SAT Physics Practice Paper 37

1. When can the instantaneous velocity of an object be equal to the average velocity of an object?

A. It can never equal the average velocity.

B. It can only equal the average velocity during acceleration.

C. It can only equal the average velocity when the velocity is constant.

D. It is always equal at the end of a displacement.

E. They are equal at the end of a displacement

2. How does one use the right hand rule to determine the direction of the force applied to a current carrying wire?

A. Point the fingers of the right hand in the same direction as the magnetic lines of force.

B. Point the thumb at right angles to the lines of force.

C. Point the fingers of the right hand along the wire in the direction of the current.

D. Point the thumb in the direction of the magnetic lines of force.

E. Point the fingers of the right hand against the direction of the magnetic lines of force.

3. When blue light is shined onto a certain metal, no electrons are ejected. Which of the following lights might eject electrons from the metal?

A. Red

B. Yellow

C. Green

D. Infrared

E. Ultraviolet

4. An astronaut visits the planet Mars, which has less of a gravitational acceleration than the earth. While on Mars, the astronaut will notice that his

A. weight is less and his mass is greater.

B. weight is the same and his mass is the same.

C. weight is less and his mass is the same.

D. weight is the same and his mass is less.

E. weight is less and his mass is less.

5. A negative ion is an object that has

A. more electrons than neutrons.

B. more electrons than protons.

C. more protons that neutrons.

D. more protons than electrons.

E. more neutrons than electrons or protons.

6. When it is known that a net force is operating on an object, it is known that the object is

A. moving with constant velocity.

B. losing mass.

C. at rest.

D. being accelerated.

E. gaining weight.

7. Which wave characteristic describes the product of the frequency and the wavelength?

A. Frequency

B. Amplitude

C. Wavelength

D. Velocity

E. Period

8. Einstein's theory of relativity states that all the laws of nature are the same in

A. accelerating reference frames.

B. constant velocity reference frames.

C. oscillating reference frames.

D. vibrating reference frames.

E. circling reference frames.

9. A 24 *V* battery supplies a total current of .75 amperes to a circuit. How much power does the battery supply to the circuit?

A. .04 watts

B. 13.5 watts

C. 18 watts

D. 32 watts

E. 32 watts

10. Two children are riding a merry-go-round. Child (*P*) rides on a pony on the outside rim of the merry-go-round, while Child (*L*) rides a lion on the inside rim of the merry-goround. At the end of the ride, which of the following statements is true?

A. Child (*P*) had the largest angular displacement.

B. Child (*L*) had the largest tangential displacement.

C. Child (*P*) had the largest tangential velocity.

D. Child (*L*) had the largest angular velocity.

E. Child (*L*) had the largest linear acceleration

11. Two high school students attempt to push a car uphill. The car rolls downhill against them for a distance of 10 m before they can bring it to a stop. If both students pushed on the car with a force of 1000N while it rolled downhill, how much work did they do?

A. 0

B. 1000 J

C. -1000 J

D. 10,000 J

E. -10,000 J

12. During a collision between two objects, the kinetic energy is conserved. Which statement best describes the momentum after the collision?

A. The momentum equals the kinetic energy.

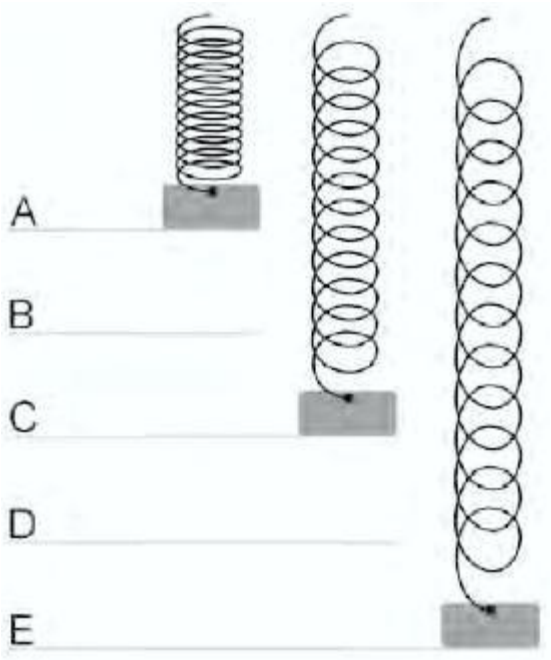
B. The momentum may be conserved.

C. The momentum must be conserved.

D. The momentum decreases by half.

E. The momentum increases to double the original value.

13.



The hanging spring shown above has a mass attached to it. The spring is set in motion by displacing the mass downward and releasing it. At which point is the kinetic energy of the mass the greatest value? (Point A is the maximum compression of the spring, and Point E is the maximum expansion of the spring.)

A. Point A

B. Point B

C. Point C

D. Point D

E. Point E

14. A gamma ray is emitted from the nucleus of an unstable atom. What is the result?

A. The number of electrons decreases.

B. The number of electrons increases.

C. The mass of the nucleus increases.

D. The mass of the nucleus decreases.

E. The mass of the nucleus remains the same.

15. Which of the following statements is true about an ideal gas contained at a fixed volume when its temperature is raised?

A. The density of the gas decreases.

B. The average velocity of the gas particles increases.

C. The density of the gas increases.

D. The pressure remains constant.

E. The pressure decreases.