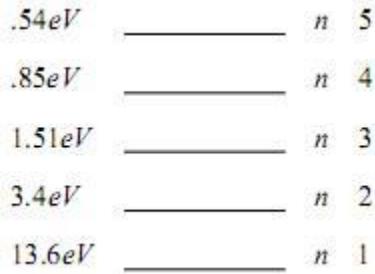# SAT Physics Practice Test 19

Part A

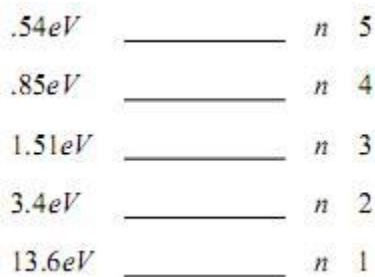**1.** Question below relates to the following chart, which is a partial energy level diagram for the hydrogen electron.

.54eV	_____	n	5
.85eV	_____	n	4
1.51eV	_____	n	3
3.4eV	_____	n	2
13.6eV	_____	n	1

The question relates to a hydrogen electron located at E-3. What is the emission energy when theelectron falls to E-2 from E-3?

A. ±.66eV

B. ±.966eV

C. ±1.89eV

D. ±10.2eV

E. ±12.09eV

2. Question below relates to the following chart, which is a partial energy level diagram for the hydrogen electron.

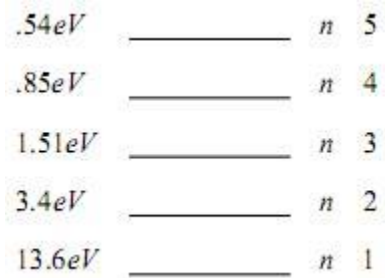|			
.54eV	_____	n	5
.85eV	_____	n	4
1.51eV	_____	n	3
3.4eV	_____	n	2
13.6eV	_____	n	1

The question relates to a hydrogen electron located at E-3. What is the absorbed energy when theelectron jumps to E-5 from E-3?

A. ±.66eV

B. ±.966eV

C. ±1.89eV

D. ±10.2eV

E. ±12.09eV

3. Question below relates to the following chart, which is a partial energy level diagram for the hydrogen electron.

.54eV	_____	n	5
.85eV	_____	n	4
1.51eV	_____	n	3
3.4eV	_____	n	2
13.6eV	_____	n	1

The question relates to a hydrogen electron located at E-3. What is the emission energy when the electron falls to E-1 from E-3?

A. ±.66eV

B. ±.966eV

C. ±1.89eV

D. ±10.2eV

E. ±12.09eV

4. A pendulum swings at a rate of .75 vibrations/second. The period of the vibrations would increase because…

A. Mass of the bob was increased

B. Length of the pendulum was increased

C. Mass of the bob was decreased

D. Length of the pendulum was decreased

E. Displacement from zero was increased

5. A pendulum swings at a rate of .75 vibrations/second. The frequency of the vibrations would decrease because…

A. Mass of the bob was increased

B. Length of the pendulum was increased

C. Mass of the bob was decreased

D. Length of the pendulum was decreased

E. Displacement from zero was increased

6. A pendulum swings at a rate of .75 vibrations/second. The velocity of the pendulum would increase because…

A. Mass of the bob was increased

B. Length of the pendulum was increased

C. Mass of the bob was decreased

D. Length of the pendulum was decreased

E. Displacement from zero was increased

7. A dog walks 120 m due east before turning and running 45 m west. He then turns and trots 40 m due north. After completing his journey, he is 85 m northeast of his home. When he hears his master call him, he runs directly home.

Which part of the trip is a negative vector?

A. The eastward leg

B. The westward leg

C. The northward leg

D. The distance from home

E. The distance to home

8. A dog walks 120 m due east before turning and running 45 m west. He then turns and trots 40 m due north. After completing his journey, he is 85 m northeast of his home. When he hears his master call him, he runs directly home.

Which part of the trip is an equilibrant?

A. The eastward leg

B. The westward leg

C. The northward leg

D. The distance from home

E. The distance to home

9. A dog walks 120 m due east before turning and running 45 m west. He then turns and trots 40 m due north. After completing his journey, he is 85 m northeast of his home. When he hears his master call him, he runs directly home.

Which part of the trip is the longest vector?

A. The eastward leg

B. The westward leg

C. The northward leg

D. The distance from home

E. The distance to home

10. The choices below give a description of the quantities listed above. Match the statement below with the quantity it describes above.

The number of wave crests passing a given point per unit of time.

A. Frequency

B. Amplitude

C. Wavelength

D. Velocity

E. Period

11. The choices below give a description of the quantities listed above. Match the statement below with the quantity it describes above.

The distance between two points or two consecutive waves.

A. Frequency

B. Amplitude

C. Wavelength

D. Velocity

E. Period

12. The choices below give a description of the quantities listed above. Match the statement below with the quantity it describes above.

The product of the frequency and the wavelength.

A. Frequency

B. Amplitude

C. Wavelength

D. Velocity

E. Period

13. A wooden crate is pushed across a concrete floor at 5 m/s and released. It slides to a stop after moving a short distance. The same crate is filled until it weighs twice as much as it did previously and again slid across the floor at 5 m/s and released. The stopping distance for the crate will be

A. 1/4 as far.

B. 1/2 as far.

C. the same distance.

D. twice as far.

E. four times as far.

14. A team of skydivers jumps from a plane and holds hands to form a flower-like design. As the skydivers begin their free fall, their velocity increases and their

A. acceleration increases.

B. acceleration decreases.

C. acceleration is constant.

D. acceleration is zero.

E. air resistance is reduced.

15. A professional golfer drives a golf ball 230 meters down the fairway. When the club head strikes the golf ball

A. the impact force on the golf ball is greatest

B. the impact force on the club head is greatest

C. the impact force is the same for both.

D. the impact force has no effect on the club

E. the impact force has no effect on the ball

Part B

1. When a woman pushes on her grocery cart, the woman moves because of

A. the force the woman exerts on the grocery cart.

B. the force the grocery cart exerts on the woman.

C. the force the woman exerts on the ground.

D. the force the ground exerts on the woman.

E. the force the grocery cart exerts on the ground.

2. During a company picnic, 6 accounting department workers participate in a tug of war with 6 sales force personnel. Each team pulls on the rope with 1200N of force. What is the tension in the rope?

A. 2400N

B. 1200N

C. 600N

D. 200N

E. 100N

3. The catcher prepares to receive a pitch from the pitcher. As the ball reaches and makes contact with his glove, the catcher pulls his hand backward. This action reduces the impact of the ball on the catcher's hand because

A. the energy absorbed by his hand is reduced.

B. the momentum of the pitch is reduced.

C. the time of impact is increased.

D. the time of impact is reduced.

E. the force exerted on his hand remains the same.

4. A 12,500 kg boxcar rolling through a freight yard has a velocity of 1 m/s when it strikes another boxcar of the same mass that is at rest. Both cars stick together and continue to roll down the track with a momentum of

A. 0 kg·m/s

B. 3125 kg· m/s

C. 6250 kg·m/s

D. 12,500 kg·m/s

E. 25,000 kg·m/s

5. A 750 g peregrine falcon dives straight down towards a 400 g pigeon, which is flying level to the ground. Just before the falcon makes impact its velocity is 35 m/s. The velocity of the falcon and the pigeon in its talons immediately after impact is most nearly

A. 35 m/s

B. 31.95 m/s

C. 28.9 m/s

D. 25.85 m/s

E. 22.8 m/s

6. A father holds his child on his shoulders during a parade. The father does no work during the parade because

A. no force acts on the child.

B. the momentum of the child is constant.

C. the potential energy of the child is gravitational.

D. the child's kinetic energy is constant.

E. the child's distance from the ground remains the same.

7. Golden Glove boxers, who are amateurs, use larger, more padded gloves than professional boxers use. The amateur boxers are more protected from injury because

A. the larger glove exerts a larger impulse on the boxer.

B. the larger glove exerts a larger force on the boxer.

C. the larger glove exerts more energy on the boxer.

D. the larger glove increases time of impact on the boxer.

E. the larger glove increases the power exerted on the boxer.

8. The driver of an automobile traveling at 80 km/hr locks his brakes and skids to a stop in order to avoid hitting a deer in the road. If the driver had been traveling at 40 km/hr, how much faster would he have stopped?

A. 4 times the distance

B. 2 times the distance

C. 1/2 the distance

D. 1/4 the distance

E. Not enough information to tell

9. During a laboratory experiment, a 19.6N pile driver is dropped 2 m on to the head of a nail, which is driven 2.45 cm into a wood board. The frictional force exerted by the wood on the nail is

A. 96.04N

B. 165N

C. 1600N

D. 1960N

E. 3200N

10. For question above, what is the magnitude of the acceleration of the pile driver while it drives the nail into the board?

A. -165 m/s2

B. -800 m/s2

C. -1600 m/s2

D. -2000 m/s2

E. -3200 m/s2

11. A child is swinging on a swing set. As the child reaches the lowest point in her swing

A. the tension in the rope is equal to her weight.

B. the tension in the rope supplies a centrifugal force.

C. her kinetic energy is at maximum.

D. her tangential acceleration equals gravity.

E. her angular velocity is minimum.

12. A bicycle wheel spins on its axis at a constant rate but has not yet made a complete rotation. Which of the following statements is correct?

A. The angular displacement is zero.

B. The linear displacement is zero.

C. The angular acceleration is zero.

D. The angular velocity is zero.

E. None of these is zero.

13. An Olympic diver performs a 3.5 somersault. During his dive he uses the tuck position so that he will have

A. larger angular momentum.

B. smaller angular momentum.

C. larger rotational rate.

D. smaller rotational rate.

E. longer time in the air.

14. While riding on a merry-go-round, you decide to move from a position close to the center to a position on the outside rim of the merry-go-round. After you have changed position, which of the following has remained the same?

A. Tangential acceleration

B. Centripetal force

C. Angular displacement

D. Tangential velocity

E. Tangential displacement

15. The International Space Station is currently under construction. Eventually, simulated earth gravity may become a reality on the space station. What would the gravitational field through the central axis be like under these conditions?

A. zero

B. 0.25 g

C. 0.5 g

D. 0.75 g

E. 1 g