Test Bank for Physical Science 12th Tillery

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Physical Science, 12e **(Tillery)**
Chapter 2 Motion

1) Imagine an experiment in which an 8 lb bowling ball and a heavier 10 lb bowling ball are dropped from a building's fifth floor window at the same time. The heavier ball will reach the ground first.

Answer: FALSE
Section: 02.04
Topic: Gravity
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

2) When you roll a ball across the floor, it comes to a stop because you are no longer exerting a force on it.

Answer: FALSE
Section: 02.03
Topic: Inertia
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

3) An object accelerates when it slows or its direction of movement changes.

Answer: TRUE
Section: 02.02
Topic: Kinematics
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Gradable: automatic

4) A car traveling at 20 mph on a curved exit ramp has a constant velocity.

Answer: FALSE
Section: 02.02
Topic: Kinematics
Bloom's: 3. Apply
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5) Newton's second law states that if an unbalanced force acts on an object, it will move at constant velocity.

Answer: FALSE
Section: 02.06
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Gradable: automatic

6) The reason a moving object slows down is that its force of motion gradually runs out.

Answer: FALSE
Section: 02.03
Topic: Inertia
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

7) The momentum of an object remains the same unless an unbalanced force acts on it.

Answer: TRUE
Section: 02.07
Topic: Momentum
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Gradable: automatic

8) Astronauts experience a weightless condition when they are in orbit.

Answer: FALSE
Section: 02.09
Topic: Gravity and Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

9) The force of gravity near the surface of Earth is 9.8 m/s^2.

Answer: FALSE
Section: 02.04
Topic: Gravity and Motion
Bloom's: 2. Understand
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10) The attractive force a 70 kg person exerts on Earth is much, much smaller than the force Earth exerts on the person.

Answer: FALSE
Section: 02.06
Topic: Newton's laws
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

11) In the equation $\bar{v} = \frac{d}{t}$, $\bar{v}$ represents
A) average speed.
B) instantaneous speed.
C) final speed.
D) constant speed.

Answer: A
Section: 02.02
Topic: Kinematics
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Gradable: automatic

12) Ignoring air resistance, the velocity of a falling object
A) is constant.
B) is constantly increasing.
C) increases for a while, then becomes constant.
D) depends on the mass of the object.

Answer: B
Section: 02.04
Topic: Gravity and Motion
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13) The tendency of a moving object to remain in unchanging motion in the absence of an unbalanced force is called
A) inertia.
B) free fall.
C) acceleration.
D) impulse.

Answer: A
Section: 02.03
Topic: Inertia
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Gradable: automatic

14) A heavy object and a light object are dropped from rest at the same time on a planet with no air (vacuum). The heavier object will reach the ground
A) before the lighter object.
B) at the same time as the lighter object.
C) after the lighter object.
D) It depends on the shape of the object.

Answer: B
Section: 02.04
Topic: Gravity and Motion
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Gradable: automatic

15) Gravity is an attractive force between
A) all massive objects.
B) Earth and objects on Earth.
C) Earth and Moon, and objects on Earth.
D) all objects everywhere.

Answer: D
Section: 02.09
Topic: Newton's laws
Bloom's: 3. Apply
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16) The newton is a unit of
A) motion.
B) energy.
C) power.
D) force.

Answer: D
Section: 02.06
Topic: Newton's laws
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Gradable: automatic

17) The weight of a 50 kg box is closest to
A) 5 N.
B) 50 N.
C) 500 N.
D) 5000 N.

Answer: C
Section: 02.06
Topic: Weight and mass
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

18) The pound is an English unit of measure; its SI counterpart is the
A) newton.
B) kilogram.
C) joule.
D) momentum.

Answer: A
Section: 02.06
Topic: Weight and mass
Bloom's: 3. Apply
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Gradable: automatic

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19) Suppose that a rock tied to a string is swinging in a circle. If the string length is increased so that the length doubled but the same speed is maintained, then the force now exerted on the string is
A) the same as before.
B) doubled.
C) half as great.
D) four times as great.

Answer: C
Section: 02.08
Topic: Circular motion
Bloom's: 4. Analyze
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20) A skateboarder pushes on the ground with her foot. She and the skateboard accelerate down the sidewalk due to the force
A) she exerts against the ground.
B) between the skateboard wheels and the ground.
C) the ground exerts against her foot.
D) of gravity acting on the skateboard.

Answer: C
Section: 02.06
Topic: Newton's laws
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

21) If an unbalanced force applied to an object doubles, then
A) its velocity doubles.
B) its acceleration doubles.
C) its acceleration is cut in half.
D) its acceleration increases by a factor of four.

Answer: B
Section: 02.06
Topic: Newton's laws
Bloom's: 4. Analyze
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22) Everything that happens in the universe can be traced to interactions of
A) matter and gravity.
B) light and matter.
C) four fundamental forces.
D) gravity waves and light.

Answer: C
Section: 02.02
Topic: Forces
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Gradable: automatic

23) The mass of a 100 N sack of seed is closest to
A) 10 kg.
B) 10 lb.
C) 98 kg.
D) 1,000 kg.

Answer: A
Section: 02.06
Topic: Weight and mass
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

24) A block of iron is transported to the Moon. Which of the following is true?
A) both its mass and weight remain unchanged.
B) its mass decreases, but its weight remains the same.
C) its mass remains the same, but its weight decreases.
D) both its mass and weight decrease.

Answer: C
Section: 02.06
Topic: Weight and mass
Bloom's: 4. Analyze
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25) From the equation $w = mg$, it is apparent that weight is a(n)
A) force.
B) mass.
C) acceleration.
D) None of the answers is correct.

Answer: A
Section: 02.06
Topic: Weight and mass
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

26) If you double the mass of an object while an unbalanced force remains constant,
A) the object moves at half the speed.
B) the acceleration of the object is doubled.
C) the object will gradually slow down.
D) the acceleration of the object is halved.

Answer: D
Section: 02.06
Topic: Newton's laws
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

27) If you consider the total distance and total time for a trip, you are calculating a(n)
A) instantaneous speed.
B) constant speed.
C) average speed.
D) nonuniform speed

Answer: C
Section: 02.02
Topic: Kinematics
Bloom's: 4. Analyze
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28) To hit a golf ball farther, you should "follow through the swing" because
A) this increases the force.
B) momentum is conserved.
C) of the relationship $\Delta p = Ft$.
D) momentum is mv.

Answer: C
Section: 02.07
Topic: Momentum
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

29) A heavy cannon ball and a lighter bowling ball were dropped at the same time from the top of a building. At the instant before the balls hit the sidewalk, the cannon ball has greater
A) velocity.
B) acceleration.
C) momentum.
D) All of the answers are correct.

Answer: C
Section: 02.07
Topic: Momentum
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Gradable: automatic

30) A 250 g ball travels at a velocity of 40 m/s. Its momentum is
A) 4 kg•m/s.
B) 10 kg•m/s.
C) 160 kg•m/s.
D) 10,000 kg•m/s.

Answer: B
Section: 02.07
Topic: Momentum
Bloom's: 3. Apply
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