Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Cp Physics Spring Final Exam Review

Multiple Choice

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

____ 1. A ball is thrown straight up. At the top of its path its acceleration is
a. 0 m/s^2.
b. about 5 m/s^2.
c. about 10 m/s^2.
d. about 20 m/s^2.
e. about 50 m/s^2.

____ 2. A 20-N falling object encounters 4 N of air resistance. The magnitude of the net force on the object is
a. 0 N.
b. 4 N.
c. 16 N.
d. 20 N.
e. none of the above

____ 3. It takes 80 J to push a large box 8 m across a floor. Assuming the push is in the same direction as the move, what is the magnitude of the force on the box?
a. 8 N
b. 10 N
c. 80 N
d. 640 N
e. none of the above

____ 4. A train travels 6 meters in the first second of travel, 6 meters again during the second second of travel, and 6 meters again during the third second. Its acceleration is
a. 0 m/s^2.
b. 6 m/s^2.
c. 12 m/s^2.
d. 18 m/s^2.
e. none of the above

____ 5. A ball is moving at 6.0 m/s and has a momentum of 24.0 kg·m/s. What is the ball's mass?
a. 0.3 kg
b. 4.0 kg
c. 24.0 kg
d. 144.0 kg
e. none of the above

____ 6. Compared to its weight on Earth, a 10-kg object on the moon will weigh
a. the same amount.
b. less.
c. more.

____ 7. A ball tossed vertically upward rises, reaches its highest point, and then falls back to its starting point. During this time the acceleration of the ball is always
a. in the direction of motion.
b. opposite its velocity.
c. directed downward.
d. directed upward.

____ 8. How much power is required to do 40 J of work on an object in 5 seconds?
   a. 0 W
   b. 5 W
   c. 8 W
   d. 40 W
   e. 200 W

____ 9. A girl whose weight is 500 N hangs from the middle of a bar supported by two vertical strands of rope. What is the tension in each strand?
   a. 0 N.
   b. 250 N.
   c. 500 N.
   d. 750 N.
   e. 1000 N.

____ 10. Steam burns are more damaging than burns caused by boiling water because steam
   a. is a vapor of water molecules.
   b. has a higher temperature than boiling water.
   c. has more energy per kilogram than boiling water.
   d. occupies more space than water.
   e. none of the above

____ 11. A car accelerates at 2 m/s^2. Assuming the car starts from rest, how much time does it need to accelerate to a speed of 20 m/s?
   a. 2 seconds
   b. 10 seconds
   c. 20 seconds
   d. 40 seconds
   e. none of the above

____ 12. Which temperature scale labels the freezing point of water at 0 degrees?
   a. Celsius
   b. Caloric
   c. Kelvin
   d. Fahrenheit
   e. none of the above

____ 13. A box is dragged without acceleration in a straight-line path across a level surface by a force of 13 N. What is the frictional force between the box and the surface?
   a. 13 N
   b. Less than 13 N
   c. More than 13 N
   d. Need more information to say.

____ 14. If the momentum of an object changes and its mass remains constant,
   a. it is accelerating (or decelerating).
   b. there is a force acting on it.
   c. its velocity is changing.
   d. all of the above
   e. none of the above

____ 15. How much does a 3.0-kg bag of bolts weigh?
a. 7.2 N
b. 14.4 N
c. 22.8 N
d. 29.4 N
e. 58.8 N

____ 16. A 4.0-kg ball has a momentum of 20.0 kg·m/s. What is the ball's speed?
a. 0.2 m/s
b. 5.0 m/s
c. 20.0 m/s
d. 80.0 m/s
e. none of the above

____ 17. The momentum change of an object is equal to the
a. impulse acting on it.
b. velocity change of the object.
c. force acting on it.
d. force acting on it times its velocity.
e. object's mass times the force acting on it.

____ 18. Compared to its mass on Earth, the mass of a 10-kg object on the moon is
a. the same.
b. more.
c. less.

____ 19. Suppose a car is moving in a straight line and steadily increases its speed. It moves from 35 km/h to 40 km/h the first second and from 40 km/h to 45 km/h the next second. What is the car's acceleration?
a. 5 km/h·s
b. 10 km/h·s
c. 35 km/h·s
d. 40 km/h·s
e. 45 km/h·s

____ 20. A sportscar has a mass of 1500 kg and accelerates at 5 meters per second squared. What is the magnitude of the force acting on the sportscar?
a. 300 N.
b. 1500 N.
c. 2250 N.
d. 7500 N.
e. none of the above

____ 21. Suppose a girl is standing on a pond where there is no friction between her feet and the ice. In order to get off the ice, she can
a. bend over touching the ice in front of her and then bring her feet to her hands.
b. walk very slowly on tiptoe.
c. get on her hands and knees and crawl off the ice.
d. throw something in the direction opposite to the way she wants to go.
e. all of the above will work

____ 22. A 5.0-kg chunk of putty moving at 10.0 m/s collides with and sticks to a 7.0-kg bowling ball that is initially at rest. The bowling ball with its putty passenger will then be set in motion with a momentum of
a. 0 kg·m/s.
b. 2.0 kg·m/s.
c. 15.0 kg·m/s.
d. 50.0 kg·m/s.
e. more than 50.0 kg·m/s.

____ 23. A vector is a quantity that has
a. magnitude and time.
b. time and direction.
c. magnitude and direction.

____ 24. A cannon recoils from launching a cannonball. The speed of the cannon's recoil is small because the
a. impulse on the cannon is less than the impulse on the cannonball.
b. cannon has far more mass than the cannonball.
c. momentum of the cannon is unchanged.
d. force against the cannon is relatively small.
e. none of the above

____ 25. Mix a liter of 70°C water with 2 liters of 40°C water and you'll have 3 liters of water at _____.
a. 28°C
b. 50°C
c. 55°C
d. 60°C

____ 26. A book weighs 4 N. When held at rest in your hands, the net force on the book is
a. 0 N.
b. 0.4 N.
c. 4 N.
d. 39 N.
e. none of the above

____ 27. A cannon with a barrel velocity of 140 m/s launches a cannonball horizontally from a tower. Neglecting air resistance, how far vertically will the cannonball have fallen after 4 seconds?
a. 80 m
b. 140 m
c. 560 m
d. 2240 m
e. none of the above

____ 28. Temperature is related mostly to the _____.
a. average molecular kinetic energy in a substance
b. total kinetic energy in something
c. average energy in a substance
d. total energy in something
e. average kinetic energy of an object

____ 29. A 60-N object moves at 1 m/s. Its kinetic energy is
a. 1 J.
b. 3 J.
c. 60 J.
d. more than 60 J.

____ 30. A car travels in a circle with constant speed. The net force on the car
a. is zero because the car is not accelerating.
b. is directed forward, in the direction of travel.
c. is directed toward the center of the curve.
d. none of the above

____ 31. Suppose a cart is being moved by a force. If suddenly a load is dumped into the cart so that the cart's mass doubles, what happens to the cart's acceleration?
a. It quarters.
b. It halves.
c. It stays the same.
d. It doubles.
e. It quadruples.

____ 32. Suppose you take a trip that covers 180 km and takes 3 hours to make. Your average speed is
a. 30 km/h.
b. 60 km/h.
c. 180 km/h.
d. 360 km/h.
e. 540 km/h.

____ 33. How many joules of work are done on a box when a force of 25 N pushes it 3 m?
a. 1 J
b. 3 J
c. 8 J
d. 25 J
e. 75 J

____ 34. The mass of a sheep that weighs 110 N is about
a. 1 kg.
b. 11 kg.
c. 110 kg.
d. 1100 kg.
e. none of the above

____ 35. A girl pulls on a 10-kg wagon with a constant force of 20 N. What is the wagon's acceleration?
a. 0.5 m/s^2
b. 2 m/s^2
c. 10 m/s^2
d. 20 m/s^2
e. 200 m/s^2

____ 36. If the force acting on a cart doubles, what happens to the cart's acceleration?
a. It quarters.
b. It halves.
c. It stays the same.
d. It doubles.
e. It quadruples.

____ 37. An object following a straight-line path at constant speed
a. has no forces acting on it.
b. has a net force acting on it in the direction of motion.
c. has zero acceleration.
d. must be moving in a vacuum.
e. none of the above

____ 38. A car starts from rest and after 7 seconds it is moving at 42 m/s. What is the car's average acceleration?
a. 0.17 m/s^2
b. 1.67 m/s^2
c. 6 m/s^2
d. 7 m/s^2
e. none of the above

____ 39. The momentum of an object is defined as the object's
a. mass times its velocity.
b. force times the time interval.
c. force times its acceleration.
d. mass times it acceleration.
e. velocity times the time interval.

____ 40. In the absence of air resistance, the angle at which a thrown ball will go the farthest is
a. 15 degrees.
b. 30 degrees.
c. 45 degrees.
d. 60 degrees.
e. 75 degrees.

____ 41. Which has greater kinetic energy, a car traveling at 30 km/h or a half-as-massive car traveling at 60 km/h?
a. The 60 km/h car
b. Both have the same kinetic energy.
c. The 30 km/h car

____ 42. Freezing occurs when matter changes from a
a. solid to a gas.
b. solid to a liquid.
c. gas to a solid.
d. liquid to a gas.
e. liquid to a solid.

____ 43. As a pendulum swings back and forth
a. at the end points of its swing, its energy is all potential.
b. at the lowest part of its swing, its energy is all kinetic.
c. kinetic energy is transformed into potential energy.
d. potential energy is transformed into kinetic energy.
e. all of the above

____ 44. Accelerations are produced by
a. forces.
b. velocities.
c. accelerations.
d. masses.
e. none of the above

____ 45. Evaporation takes place when matter changes from a
a. solid to a liquid.
b. solid to a gas.
c. liquid to a gas.
d. gas to a liquid.
e. gas to a solid.

____ 46. A 15-N force and a 45-N force act on an object in opposite directions. What is the net force on the object?
a. 15 N
b. 30 N
c. 45 N
d. 60 N
e. none of the above

____ 47. A person is attracted towards the center of Earth by a 440-N gravitational force. The force with which Earth is attracted toward the person is
a. 440 N.
b. very very small.
c. very very large.

____ 48. You pull horizontally on a 50-kg crate with a force of 450 N and the friction force on the crate is 250 N. The acceleration of the crate is
a. 2 m/s^2.
b. 4 m/s^2.
c. 9 m/s^2.
d. 14 m/s^2.

____ 49. A 2-kg ball is thrown at 3 m/s. What is the ball's momentum?
a. 2 kg·m/s
b. 3 kg·m/s
c. 6 kg·m/s
d. 9 kg·m/s
e. none of the above

____ 50. When an iron ring is heated, the hole becomes _____.
a. larger
b. smaller
c. neither smaller nor larger

____ 51. If a projectile is fired straight up at a speed of 30 m/s, the total time to return to its starting point is about
a. 3 second.
b. 6 seconds.
c. 30 seconds.
d. 60 seconds.
e. not enough information to estimate.

____ 52. As a ball falls, the action force is the pull of Earth's mass on the ball. What is the reaction to this force?
a. The pull of the ball's mass on Earth
b. The acceleration of the ball
c. Nonexistent in this case
d. Air resistance acting against the ball
e. none of the above

____ 53. Pressure is defined as
a. time per area.
b. velocity per time.
c. force per time.
d. force per area.
e. distance per time.

____ 54. If the specific heat capacity of water were higher than it is, lakes would be _____.
a. more likely to freeze
b. less likely to freeze
c. neither of the above

____ 55. Condensation occurs when matter changes from a
a. gas to a liquid.
b. solid to a gas.
c. solid to a liquid.
d. liquid to a gas.
e. gas to a solid.

____ 56. How much farther will a car traveling at 100 km/s skid than the same car traveling at 50 km/s?
a. Half as far.
b. The same distance.
c. Twice as far.
d. Four times as far.
e. Five times as far.

____ 57. A rock is thrown vertically into the air. At the very top of its trajectory the net force on it is
a. its weight.
b. less than its weight.
c. more than its weight.

____ 58. A freely falling object starts from rest. After falling for 6 seconds, it will have a speed of about
a. 6 m/s.
b. 30 m/s.
c. 60 m/s.
d. 300 m/s.
e. more than 300 m/s.

____ 59. A player hits a ball with a bat. The action force is the impact of the bat against the ball. What is the reaction to this force?
a. The force of the ball against the bat
b. The weight of the ball
c. Air resistance on the ball
d. The grip of the player's hand against the bat
e. none of the above

____ 60. A ball is thrown straight up. At the top of its path its instantaneous speed is
a. 0 m/s.
b. about 5 m/s.
c. about 10 m/s.
d. about 20 m/s.
e. about 50 m/s.

____ 61. Two people pull on a rope in a tug-of-war. Each pulls with 400 N of force. What is the tension in the rope?
a. 0 N
b. 400 N
c. 600 N
d. 800 N
e. none of the above

Cp Physics Spring Final Exam Review
Answer Section

MULTIPLE CHOICE

1. C
2. C
3. B
4. A
5. B
6. B
7. C
8. C
9. B
10. C
11. B
12. A
13. A
14. D
15. D
16. B
17. A
18. A
19. A
20. D
21. D
22. D
23. C
24. B
25. B
26. A
27. A
28. A
29. B
30. C
31. B
32. B
33. E
34. B
35. B
36. D
37. C
38. C

39. A
40. C
41. A
42. E
43. E
44. A
45. C
46. B
47. A
48. B
49. C
50. A
51. B
52. A
53. D
54. B
55. A
56. D
57. A
58. C
59. A
60. A
61. B