

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
- 0 m/s².
 - about 5 m/s².
 - about 10 m/s².
 - about 20 m/s².
 - about 50 m/s².
- _____ 2. A 20-N falling object encounters 4 N of air resistance. The magnitude of the net force on the object is
- 0 N.
 - 4 N.
 - 16 N.
 - 20 N.
 - 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?
- 8 N
 - 10 N
 - 80 N
 - 640 N
 - 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
- 0 m/s².
 - 6 m/s².
 - 12 m/s².
 - 18 m/s².
 - 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?
- 0.3 kg
 - 4.0 kg
 - 24.0 kg
 - 144.0 kg
 - none of the above
- _____ 6. Compared to its weight on Earth, a 10-kg object on the moon will weigh
- the same amount.
 - less.
 - 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
- in the direction of motion.
 - opposite its velocity.
 - directed downward.
 - directed upward.

- _____ 8. How much power is required to do 40 J of work on an object in 5 seconds?
- 0 W
 - 5 W
 - 8 W
 - 40 W
 - 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?
- 0 N.
 - 250 N.
 - 500 N.
 - 750 N.
 - 1000 N.
- _____ 10. Steam burns are more damaging than burns caused by boiling water because steam
- is a vapor of water molecules.
 - has a higher temperature than boiling water.
 - has more energy per kilogram than boiling water.
 - occupies more space than water.
 - 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?
- 2 seconds
 - 10 seconds
 - 20 seconds
 - 40 seconds
 - none of the above
- _____ 12. Which temperature scale labels the freezing point of water at 0 degrees?
- Celsius
 - Caloric
 - Kelvin
 - Fahrenheit
 - 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?
- 13 N
 - Less than 13 N
 - More than 13 N
 - Need more information to say.
- _____ 14. If the momentum of an object changes and its mass remains constant,
- it is accelerating (or decelerating).
 - there is a force acting on it.
 - its velocity is changing.
 - all of the above
 - none of the above

- _____ 15. How much does a 3.0-kg bag of bolts weigh?
- 7.2 N
 - 14.4 N
 - 22.8 N
 - 29.4 N
 - 58.8 N
- _____ 16. A 4.0-kg ball has a momentum of 20.0 kg·m/s. What is the ball's speed?
- 0.2 m/s
 - 5.0 m/s
 - 20.0 m/s
 - 80.0 m/s
 - none of the above
- _____ 17. The momentum change of an object is equal to the
- impulse acting on it.
 - velocity change of the object.
 - force acting on it.
 - force acting on it times its velocity.
 - 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
- the same.
 - more.
 - 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?
- 5 km/h·s
 - 10 km/h·s
 - 35 km/h·s
 - 40 km/h·s
 - 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?
- 300 N.
 - 1500 N.
 - 2250 N.
 - 7500 N.
 - 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
- bend over touching the ice in front of her and then bring her feet to her hands.
 - walk very slowly on tiptoe.
 - get on her hands and knees and crawl off the ice.
 - throw something in the direction opposite to the way she wants to go.
 - 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
- 0 kg·m/s.
 - 2.0 kg·m/s.
 - 15.0 kg·m/s.
 - 50.0 kg·m/s.
 - more than 50.0 kg·m/s.
- _____ 23. A vector is a quantity that has
- magnitude and time.
 - time and direction.
 - magnitude and direction.
- _____ 24. A cannon recoils from launching a cannonball. The speed of the cannon's recoil is small because the
- impulse on the cannon is less than the impulse on the cannonball.
 - cannon has far more mass than the cannonball.
 - momentum of the cannon is unchanged.
 - force against the cannon is relatively small.
 - 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 _____.
- 28°C
 - 50°C
 - 55°C
 - 60°C
- _____ 26. A book weighs 4 N. When held at rest in your hands, the net force on the book is
- 0 N.
 - 0.4 N.
 - 4 N.
 - 39 N.
 - 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?
- 80 m
 - 140 m
 - 560 m
 - 2240 m
 - none of the above
- _____ 28. Temperature is related mostly to the _____.
- average molecular kinetic energy in a substance
 - total kinetic energy in something
 - average energy in a substance
 - total energy in something
 - average kinetic energy of an object
- _____ 29. A 60-N object moves at 1 m/s. Its kinetic energy is
- 1 J.
 - 3 J.
 - 60 J.
 - more than 60 J.

- _____ 30. A car travels in a circle with constant speed. The net force on the car
- is zero because the car is not accelerating.
 - is directed forward, in the direction of travel.
 - is directed toward the center of the curve.
 - 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?
- It quarters.
 - It halves.
 - It stays the same.
 - It doubles.
 - It quadruples.
- _____ 32. Suppose you take a trip that covers 180 km and takes 3 hours to make. Your average speed is
- 30 km/h.
 - 60 km/h.
 - 180 km/h.
 - 360 km/h.
 - 540 km/h.
- _____ 33. How many joules of work are done on a box when a force of 25 N pushes it 3 m?
- 1 J
 - 3 J
 - 8 J
 - 25 J
 - 75 J
- _____ 34. The mass of a sheep that weighs 110 N is about
- 1 kg.
 - 11 kg.
 - 110 kg.
 - 1100 kg.
 - 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?
- 0.5 m/s^2
 - 2 m/s^2
 - 10 m/s^2
 - 20 m/s^2
 - 200 m/s^2
- _____ 36. If the force acting on a cart doubles, what happens to the cart's acceleration?
- It quarters.
 - It halves.
 - It stays the same.
 - It doubles.
 - It quadruples.

- _____ 37. An object following a straight-line path at constant speed
- has no forces acting on it.
 - has a net force acting on it in the direction of motion.
 - has zero acceleration.
 - must be moving in a vacuum.
 - 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?
- 0.17 m/s^2
 - 1.67 m/s^2
 - 6 m/s^2
 - 7 m/s^2
 - none of the above
- _____ 39. The momentum of an object is defined as the object's
- mass times its velocity.
 - force times the time interval.
 - force times its acceleration.
 - mass times its acceleration.
 - velocity times the time interval.
- _____ 40. In the absence of air resistance, the angle at which a thrown ball will go the farthest is
- 15 degrees.
 - 30 degrees.
 - 45 degrees.
 - 60 degrees.
 - 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?
- The 60 km/h car
 - Both have the same kinetic energy.
 - The 30 km/h car
- _____ 42. Freezing occurs when matter changes from a
- solid to a gas.
 - solid to a liquid.
 - gas to a solid.
 - liquid to a gas.
 - liquid to a solid.
- _____ 43. As a pendulum swings back and forth
- at the end points of its swing, its energy is all potential.
 - at the lowest part of its swing, its energy is all kinetic.
 - kinetic energy is transformed into potential energy.
 - potential energy is transformed into kinetic energy.
 - all of the above

- _____ 44. Accelerations are produced by
- forces.
 - velocities.
 - accelerations.
 - masses.
 - none of the above
- _____ 45. Evaporation takes place when matter changes from a
- solid to a liquid.
 - solid to a gas.
 - liquid to a gas.
 - gas to a liquid.
 - 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?
- 15 N
 - 30 N
 - 45 N
 - 60 N
 - 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
- 440 N.
 - very very small.
 - 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
- 2 m/s².
 - 4 m/s².
 - 9 m/s².
 - 14 m/s².
- _____ 49. A 2-kg ball is thrown at 3 m/s. What is the ball's momentum?
- 2 kg·m/s
 - 3 kg·m/s
 - 6 kg·m/s
 - 9 kg·m/s
 - none of the above
- _____ 50. When an iron ring is heated, the hole becomes _____.
- larger
 - smaller
 - 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
- 3 second.
 - 6 seconds.
 - 30 seconds.
 - 60 seconds.
 - 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?
- The pull of the ball's mass on Earth
 - The acceleration of the ball
 - Nonexistent in this case
 - Air resistance acting against the ball
 - none of the above
- _____ 53. Pressure is defined as
- time per area.
 - velocity per time.
 - force per time.
 - force per area.
 - distance per time.
- _____ 54. If the specific heat capacity of water were higher than it is, lakes would be _____.
- more likely to freeze
 - less likely to freeze
 - neither of the above
- _____ 55. Condensation occurs when matter changes from a
- gas to a liquid.
 - solid to a gas.
 - solid to a liquid.
 - liquid to a gas.
 - 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?
- Half as far.
 - The same distance.
 - Twice as far.
 - Four times as far.
 - 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
- its weight.
 - less than its weight.
 - more than its weight.
- _____ 58. A freely falling object starts from rest. After falling for 6 seconds, it will have a speed of about
- 6 m/s.
 - 30 m/s.
 - 60 m/s.
 - 300 m/s.
 - 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?
- The force of the ball against the bat
 - The weight of the ball
 - Air resistance on the ball
 - The grip of the player's hand against the bat
 - none of the above

Name: _____

ID: A

- _____ 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