Physics Fall Practice Final

MULTIPLE CHOICE

1. The product of 4.82×10^4 and 1.2×10^7 is best expressed as
   a. 5.784×10^{11}
   b. 5.7×10^{28}
   c. 5.8×10^{11}
   d. 5.78×10^{28}

   ANS: C PTS: 1

2. The degree of exactness to which the measurment of the quanity can be reproduced is called:
   a. accuracy
   b. precision
   c. parallax
   d. none of the above

   ANS: B PTS: 1

3. A man walks 40 meters north, then 70 meters east, and then 40 meters south. what is his displacment from the starting point?
   a. 150 meters east
   b. 150 meters west
   c. 70 meters east
   d. 70 meters west

   ANS: C PTS: 1

4. The slope of the tangent on a position-time graph equals the
   a. avarage speed
   b. constant speed
   c. avarage velocity
   d. instantaneous velocity

   ANS: D PTS: 1

5. A car is accelerated at 4.0 m/s^2 from rest. the car will reach a speed of 28 m/s in __ sec
   a. 3.5 sec
   b. 7.0 sec
   c. 14 sec
   d. 24 sec

   ANS: B PTS: 1

6. A rocket in space can travel without engine power at constant speed in the same direction. this condition is best explained by the concept of
   a. gravitation
   b. action-reaction
   c. acceleration
   d. inertia

   ANS: D PTS: 1

7. A child dops a ball. the instantaneous accceleration of the ball is ____?
   a. zero
   b. 9.8 ms^2
   c. increasing
   d. decreasing

   ANS: B PTS: 1

8. What is the magnitude of the velocity of a 25-kilogram mass that is moving with a momentum of 100, kilogram-meters per second
   a. 40. m/s
   b. 2500 m/s
   c. 0.25 m/s
   d. 4.0 m/s

   ANS: D PTS: 1

9. If the direction of the momentum of an object is west, the direction of the velocity of the object is
   a. west
   b. east
   c. south
   d. north

   ANS: A PTS: 1

10. A net force of 12 newtons acting north on an obeject for 4.0 seconds will produce an impulse of
   a. 48 kg-m/sec south
   b. 48 kg-m/sec north
   c. 3.0 kg-m/sec north
   d. 3.0 kg-m/sec south

   ANS: B PTS: 1

11. In a baseball game, a batter hits a ball for a home run. Compared to the magnitude of the impulse imparted to the ball, the magnitude of the impulse imparted to the bat is
   a. less
   b. greater
   c. the same

   ANS: C PTS: 1

12. A test booklet is sitting at rest on a desk. Compared to the force of the booklet on the desk, the force of the desk on the booklet is
   a. greater
   b. the same
   c. less

   ANS: B PTS: 1

13. What is scalar quantity?
   a. force
   b. distance
   c. acceleration
   d. displacement

   ANS: B PTS: 1

14. A student weighing 500 neetons stands on a spring scale in an eevator. If the scale reads 520 newtons, the elevatormust be
   a. moving upward at constant speed
   b. accelerating downward
   c. accelerating upward
   d. moving downwrd at a constant speed

   ANS: C PTS: 1

15. Which statement explains why a book resting on a table is in equilibrium?
   a. There is a net force acting downward on the book.
   b. the acceleration due to gravity is 9.8 m/s^2
   c. The weigt of the book is equal to the weight of the table.
   d. the weight of the book and the table's upward force on the book are equal in magnitude, but opposite direction.

   ANS: D PTS: 1

16. A baseball bat moving at high velocity strikes a feather. If air resistance is neglected, compared to the force exerted by the bat on the feather, the force exerted by the feather on the bat will be
   a. the same
   b. larger
   c. smaller

   ANS: A PTS: 1

17. Which two quantities are measured in the same units?

a. weight and force
b. force and momentum
c. velocity and acceleration
d. mass and wieght

ANS: A PTS: 1

18. A 50 kilogram woman is wearing a seat belt in a traveling car that is moving with a velocity of +10 meters per second. In an emergency, the car is brought to a stop in .50 seconds. What force does the seat belt exert on the woman so that she remains in her seat?
a. -2.5×10^1 N
b. -5.0×10^2 N
c. -5.0×10^1 N
d. -1.0×10^3 N

ANS: D PTS: 1

19. A student walks 3 blocks south, 4 blocks west, and 3 blocks north. What is the displacement of the student?
a. 10 blocks west
b. 4 blocks west
c. 4 blocks east
d. 10 blocks east

ANS: B PTS: 1

20. What is the weight of the 5.0 - kg object at the surface of the Earth?
a. 49 N
b. 49 kg
c. 25 N
d. 5.0 kg

ANS: A PTS: 1

21. Which is the most likely mass of a high school student?
a. 250 kg
b. 1 kg
c. 5 kg
d. 60 kg

ANS: D PTS: 1

22. A satellite is accelerated away from Earth by rocket, the satellite's mass
a. decreases
b. increases
c. remains the same

ANS: C PTS: 1

23. A stone is dropped from a bridge 45 meters above the suface of the river. Approximately how many seconds does the stone take to reach the water's surface?
a. 3.0 s
b. 22s
c. 10. s
d. 1.0 s

ANS: A PTS: 1

24. ON the planet gamma, a 4.0-kilogram mass experiences a gravitational force of 24 newtons. What is the acceleration due to gravity on the planet gamma?
a. 6.0 m/s^2
b. 0.17 m/s^2
c. 96 m/s^2
d. 9.8 m/s^2

ANS: A PTS: 1

25. In an experiment that measures how fast a student reacts, a meter stick dropped from rest falls 0.20 meter before the student catches it. The reaction time of the student is approximately
a. 0.30 s
b. 0.40 s
c. 0.20 s
d. 0.10 s

ANS: C PTS: 1

26. A car accelerates at 2 m/s/s. Assuming the car starts from rest, how much time does it need to accelerate to a speed of 30 m/s?
    a. 2 sec.
    b. 15 sec.
    c. 30 sec.
    d. 60 sec.
    e. None of the above

    ANS: B PTS: 1

27. As an object falls freely in a vacum, its
    a. velocity increases
    b. acceleration increases
    c. Both of the above
    d. None of the above

    ANS: A PTS: 1

28. If a freely falling object were somehow equipped with a speedometer, its speed reading would increase each seocnd by
    a. about 5 m/s
    b. about 10 m/s
    c. about 15 m/s
    d. a variable amount
    e. a rate that depends on its initial speed.

    ANS: B PTS: 1

29. Ignoring air resistance, if a 10-kg ball and a 200-kg crate were both dropped from the top of a building, the acceleration of the crate would be _____ the acceleration of the ball.
    a. greater than
    b. less than
    c. equal to
    d. none of the above

    ANS: C PTS: 1

30. Which has more momentum, a large truck moving at 30 mi/hr or a small truck moving at 30 mi/hr?
    a. The large truck
    b. The small truck
    c. Both have the same momentum
    d. none of the above

    ANS: A PTS: 1

31. A rifle recoils after firing a bullet. The speed of the rifle's recoil is small because
    a. force against the rifle is relatively small
    b. impulse on the rifle is less than the impulse on the bullet
    c. rifle has lots more mass than the bullet
    d. momentum of the rifle is unchanged

    ANS: C PTS: 1

32. A toy rocket is launched straight up into the air and relatively close to the Earth's surface. When the rocket reaches its maximum height, its acceleration is
    a. at its maximum
    b. at its minimum
    c. constant
    d. equal to its displacement divided by time

    ANS: C PTS: 1

33. A trunk with a mass of 300.0 kg slides down a frictionless ramp that makes a 45 degree angle with the horizontal. The number of force vectors on a free body diagram for the trunk is equal to
    a. 5
    b. 1
    c. 2
    d. 3

ANS: C PTS: 1

34. A toy rocket is launched straight up into the air. When the rocket reaches its maximum height, its velocity is
    a. at its maximum
    b. at its minimum
    c. equal to its displacement multiplied by time
    d. equal to its displacement divided by time

    ANS: B PTS: 1

35. As the mass of an object decreases, its inertia will
    a. remain the same
    b. increase
    c. decrease
    d. become zero

    ANS: C PTS: 1

36. Starting from rest, a rock that freefalls will fall how far in 3.6 seconds?
    a. 3.6 m
    b. 65 m
    c. 36 m
    d. 10 m

    ANS: A PTS: 1

37. An example of an elastic collision is
    a. A bullet lodging itself into a wooden stump
    b. A Que ball hitting the 8 ball
    c. A large truck accelerating after a green light
    d. A man running and jumping into a boat.

    ANS: B PTS: 1