CP Physics Practice 18 Week Test

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

1) A sheet of paper can be withdrawn from under a container of orange juice without toppling it if the paper is jerked quickly. This best demonstrates that\_\_A\_\_\_\_\_\_\_\_\_\_\_\_\_

A) the juice carton has inertia.

B) gravity tends to hold the juice carton secure.

C) there is an action-reaction pair of forces.

D) the juice carton has no acceleration.

E) none of these

2) If your snowmobile runs out of fuel while you are driving, the engine stops but you do not come to an abrupt stop. The concept that most explains why is \_\_B\_\_\_\_\_

A) acceleration. B) inertia.

C) gravity. D) resistance.

3) If no external forces are acting on a moving object it will \_\_C\_\_\_\_\_

A) move sloA) force. B) weight. C) size. D) mass.

wer and slower until it finally stops.

B) continue moving at the same speed.

C) continue moving at the same velocity.

4) A kilogram is a measure of an object's \_\_\_D\_\_\_\_

5) A person’s weight is \_\_\_C\_\_\_\_

A) equal to their mass.

B) a property of mechanical equilibrium.

C) the gravitational attraction force between themself and the Earth.

D) all of these

6) If object A has twice as much mass as object B, object A also has twice as much \_\_\_\_C\_\_\_

A) volume.

B) velocity.

C) inertia.

D) acceleration due to gravity.

E) all of these

7) Compared to the mass of a certain object on Earth, the mass of the same object on Saturn is \_\_\_\_C\_\_\_

A) one eleventh as much. B) eleven times as much.

C) the same. D) zero.

8) The newton is a unit of \_\_\_\_\_C\_\_

A) inertia. B) density. C) force. D) mass.

9) An object's weight may properly be expressed in units of \_\_\_\_A\_\_\_

A) newtons. B) meters.

C) cubic centimeters D) kilograms.

10) A force is a vector quantity because it has both \_\_\_C\_\_\_

A) mass and acceleration.

B) action and reaction counterparts.

C) magnitude and direction.

11) An object is propelled along a straight-line path by a force. If the net force were tripled, the object's acceleration would be \_\_B\_\_\_\_

A) nine times as much.

B) tripled.

C) the same.

D) one third as much.

12) An object is propelled along a straight-line path in space by a force. If the mass of the object somehow becomes four times as much, its acceleration \_\_E\_\_\_\_

A) halves.

B) stays the same.

C) doubles.

D) quadruples.

E) will only be one quarter of what it was before.

13) An object is pulled northward by a force of 20 N and at the same time another force of 15N pulls it southward. The magnitude of the resultant force on the object is \_\_\_A\_\_\_

A) 5 N. B) 25 N. C) 0 N. D) 300 N.

14) A 30-N falling object encounters 30 N of air resistance. The net force on the object is \_B\_\_\_\_\_

A) 14 N.

B) 0 N.

C) 16 N.

D) 30 N.

E) none of these

15) Whenever the net force on an object is zero, its acceleration \_\_\_A\_\_\_

A) is zero.

B) may be more than zero

C) may be less than zero.

16) A 2-kg mass at the earth's surface weighs \_\_C\_\_\_\_

A) 2 N. B) 9.8 N. C) 19.6 N. D) 4.9 N.

17) A minivan has a mass of 1500 kg and accelerates at 3 meters per second per second. What is the magnitude of the net force exerted on the minivan? \_\_B\_\_\_\_

A) 1500 N

B) 4500 N

C) 500 N

D) 2000 N

E) none of these

18) A tractor exerts a force of 4000 N on a hay wagon, accelerating it at 2 meters per second per second. What is the mass of the hay wagon? \_\_D\_\_\_\_

A) 500 kg

B) 8000 kg

C) 1000 kg

D) 2000 kg

E) none of these

19) A girl pulls on a 5-kg sled with a constant horizontal force of 20 N. If there are no other horizontal forces, what is the sled’s acceleration in meters per second per second? \_\_\_E\_\_\_

A) 25 B) 10 C) 15 D) 100 E) 4

20) The force required to maintain an object at a constant velocity in outer space is equal to \_\_\_C\_\_\_

A) the mass of the object.

B) the weight of the object.

C) zero.

D) the force required to stop it.

E) none of these

21) A woman weighing 600 N stands at rest on two bathroom scales so that her weight is distributed evenly over both

scales. The reading on each scale is \_\_C\_\_\_\_

A) 600 N.

B) 200 N.

C) 300 N.

D) 1200 N.

E) none of these

22) A ball is thrown vertically into the air. At the top of its path, its acceleration in meters per second per second is \_\_\_C\_\_\_

A) zero. B) greater than 9.8.

C) 9.8. D) between 0 and 9.8.

23) An hunter shoots a crossbow. Consider the action force to be exerted by the bowstring against the arrow. The reaction to this force is the \_\_\_B\_\_\_

A) combined weight of the arrow and bowstring.

B )arrow's push against the bowstring.

C) air resistance against the bow.

D) grip of the archer's hand on the bow.

E) friction of the ground against the archer's feet.

24) A hockey player uses his stick and hits a puck with a force of 500 N. The reaction force that the puck exerts against the stick is \_\_\_A\_\_\_

A) 500 N. B) more than 500 N.

C) less than 500 N. D) impossible to determine.

25) A car traveling at 80 km/hr strikes an unfortunate pigeon and splatters it. The force of impact is \_\_\_C\_\_\_

A) greater on the pigeon.

B) greater on the car.

C) the same for both.

26) Which of the following has the largest momentum relative to the Earth? \_\_\_A\_\_\_

A) a pickup truck speeding along a highway

B) a dog running down the street

C) the Science building on campus

D) a tightrope walker crossing Niagara Falls

E) a Mack truck parked in a parking lot

27) A shotgun recoils while firing a load of buckshot. The speed of the shotgun's recoil is small because the \_\_A\_\_\_\_

A) shotgun has much more mass than the load of buckshot.

B) momentum is mainly concentrated in the buckshot.

C) force against the shotgun is smaller than against the buckshot.

D) momentum of the shotgun is smaller.

28) In order to catch a foul ball, a baseball fan extends the hand forward before impact with the ball and then lets it ride backward in the direction of the ball's motion .. Doing this reduces the force of impact on the fan's hand principally because the \_\_D\_\_\_\_

A) time of impact is decreased.

B) force of impact is reduced.

C) relative velocity is less.

D) time of impact is increased.

E)none of these

29) When you jump from an elevated position you usually bend your knees upon reaching the ground. By doing this, you make the time of the impact about 10 times as great as for a stiff-legged landing. In this way the average force your body experiences is \_\_\_A\_\_\_

A) about 1/10 as great. B) more than 1/10 as great.

C) about 10 times as great. D) less than 1/10 as great.

30) Padded steering wheels in cars are safer in an accident than non-padded ones because a driver hitting the wheel has an \_\_\_D\_\_\_

A) decreased time of impact. B) increased momentum.

C) decreased impulse. D) increased time of impact.

**Answers:**

1)A 2)B 3)C 4)D 5)C 6)C 7)C 8)C 9)A 10)C 11)B 12)E 13)A 14)B 15)A 16)C 17)B 18)D 19)E 20)C 21)C 22)C 23)B 24)A 25)C 26)A 27)A 28)D 29)A 30)D