First Exam

Use g=10 m/s^2

Please read each question carefully. Each question worth's 1 point.

For the following questions, please circle ◯ the correct answer.

Part 1.

1. An object is pulled northward with a force of **10 N** and southward with a force of **15 N**. The magnitude of the net force on the object is

A) 0 N B) 5.0 N C) 10 N D) 15 N E) none of these.

2. force of **120 N** is applied to an object whose mass is **30 kg**. The object's acceleration (in **m/s^2**) is

A) 3600 B) 150 C) 4.0 D) 2.0 E) 0.25.

3. The force of friction on a sliding object is **10 N.** The applied force needed to maintain a constant velocity is

A) more than 10 N B) less than 10 N C) 10 N D) 0 N
E) None of the above

4. An object is falling freely at a speed of **50 m/s**, exactly after **1s** later the speed is

A) 25 m/s B) 50 m/s C) 55 m/s D) 60 m/s E) 100 m/s

5. Disregarding air resistance, an object falls at

A) constant speed B) constant velocity C) equal distance each second
D) constant acceleration E) time

6. If you carry a heavy bag of groceries and you bang your hand against the wall, the concept which explains why you are hurt is

A) gravity B) inertia C) acceleration D) resistance E) none of the above

7. An object hits a wall and bounces back with **half** of its original speed. What is the ratio of the final kinetic energy to the initial kinetic energy??

A) ½ B) ¼ C) 2 D) 4 E) 8

8. A golf club exerts an average force of **1000 N** on a **0.045-kg** golf ball which is initially at rest. The club is in contact with the ball for **0.0018 s**. What is the speed of the golf ball as it leaves the tee?

A) 30 B) 35 C) 40 d) 45 E) 50

9. A free falling object on a planet where the acceleration due to gravity there is **20 m/s^2,** its speed increases each second by

A) 10 m/s B) 20 m/s C) 30 m/s D) 40 m/s
E) depends on its initial speed

10. A moving object has

A) speed B) velocity C) momentum D) energy E) all of the above

11. When the distance between two stars decreases by half, the force between them

A) decreases by ¼ B) decreases by ½ C) increases to twice as much
D) increases to four times as much E) stays the same.

<u>Part 2:</u> ***(2 points each)***

Please read each question carefully and show your work in the space provided. Your answer should include with the appropriate units.

Q.1 A **1000 kg** car moving at **10 m/s** brakes to stop in **5.0 s**. Find the average braking force.

Answer_____

Q.2. A **0.140-kg** baseball is dropped from rest from a height of **2.00 m** above the ground. What is the magnitude of its momentum just before it hits the ground?.

***Answer*_____**

Q.4 A ball is thrown horizontally from an elevation of **5.0 m** above the ground. The ball lands **20 m** downrange. What is the ball's initial velocity?

***Answer*_____**

Good Luck