Part 1. ***(1point each)***

Please circle ○ the correct answer for each of the following questions:

1. The gain in speed each second for a freely falling object is about

A) zero B) 5 m/s C) 10 m/s D) 20 m/s
E) depends on the initial speed.

2. Which object has **zero** acceleration?

A) at rest B) moving at constant velocity C) in mechanical equilibrium D) all of the above E) none of the above

3. The acceleration of a car that maintains a constant velocity of **100 km/h** in **10 s** is

A) 10 km/h.s B) 10 m/s^2 C) 1000 km/h.s D) zero
E) none of the above

4. An object weighs **30 N** on earth. A second object weighs **30 N** on the moon. Which one has the greatest mass?

A) The one on earth B) The one on the moon C) They have the same mass
D) not enough information to decide E) none of the above

5. An object falls in a free fall travels at a velocity of **50 m/s**., exactly one second later, its velocity in **m/s** is about

A) 25 B) 50 C) 55 D) 60 E) 100

6. An apple falls from a tree and hits the ground **5 m** below. The velocity in **m/s** of the apple just before it hits the ground is

A) 5 B) 10 C) 15 D) 20 E) not enough information

7. If a car increases its velocity from **zero** to **60 m/s** in **10 s**. its acceleration is

A) 3 m/s^2 B) 6 m/s^2 C) 10 m/s^2 D) 60 m/s^2 E) 600 m/s^2

8. An object maintains its state of rest or motion because it has

A) weight B) mass C) velocity D) acceleration E) all of the above

9. A **10 N** falling object encounters an air resistance of **4.0 N**. The magnitude of the net force in **N** acting on the object is

A) 0 B) 4 C) 6 D) 10 E) none of the above

10. A girl pulls on a **10 kg** wagon with a constant force of **30 N** for **10 s.** The acceleration in **m/s^2** of the wagon during the **10 s** is

A) 0.3 B) 3.0 C) 10 D) 30 E) 300

11. A bag of groceries has a mass of **10 kg** and a weight of about

A) 1.0 N B) 10 N C) 20 N D) 100 N E) none of the above

12. A fallen object that has reached its terminal velocity continues to gain

A) acceleration B) velocity C) force D) A and B E) none of the above

Part 2:

Please read each of the following questions carefully and show your answer with the appropriate units. ***(2 points each)***

Q.1 A ball is thrown **125 m** upward and then falls the same distance back to earth. Neglecting air resistance, find the total time of the ball in the air.

***Answer*_____**

Q.2. A **1.0 kg** object is thrown at **10 m/s**, straight upward. Neglecting air resistance, find the net force acting on the object when it is half way to the top of its path.

Answer _____

Good Luck