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

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

1. A moving object on which no forces acting on it will continue to move with constant

A) acceleration B) impulse C) momentum
D) all of the above E) none of the above.

2. It is correct to say that the impulse is equal to

A) momentum B) the change in momentum
C) the force multiplied by the distance the force acts D) all of the above
E) none of the above

3. A **4.0 kg** ball has a momentum of **12 kg.m/s**. What is the speed of the ball?

A) 3.0 m/s B) 4.0 m/s C) 12 m/s D) 48 m/s E) none of the above

4. A ball is thrown at an angle of $\mathbf{45^0}$ above the horizontal with a velocity of **2.0 m/s.** The vertical component of the velocity is about

A) 0.7 m/s B) 1.4 m/s C) 1.6 m/s D) 2.0 m/s E) 4.0 m/s

5. A ball is thrown horizontally from the top of a tall cliff. Three seconds later, the ball has fallen a vertical distance of

A) 20 m B) 30 m C)45 m D) 60 m E) 90 m

6. The circular orbit of a satellite orbiting the earth is characterized by a constant

A) velocity B) acceleration C) radial distance
D) all of the above E) none of the above

7. A bullet is fired horizontally from a tower at **100 m/s**. Neglecting air resistance, where will the bullet be **1.0 s** later?

A) 50 m downrange B) 98 m downrange C) 100 m downrange
D) 490 m downrange E) none of these

8. One liter of water has a mass of

A) 2.0 kg B) 1.0 kg C) 2.0 N D)1.0 N E) all of the above

9. What is the buoyant force acting on a **10 ton** ship floating in the ocean?

A) 20 ton B)10 ton C) 30 ton D) 5 ton E) none of the above

10. A rock suspended by a weighing scale weighs **5.0 N** out of water and **3.0 N** when submerged. What is the buoyant force on the rock?

A) 8.0 N B) 5.0 N C) 3.0 N D) 2.0 N E) none of the above

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

A) decrease by one-quarter B) decrease by one-half
C) increase by twice as much D) increase by four times as much
E) none of the above

Part 2:

Please read each of the following questions carefully and show your answer with the appropriate units.

Q.1 A **10.0 kg** object accelerates from rest to a velocity of **25 m/s** during an interval of **5.0 s**. What was the magnitude of the net force exerted on it? ***(2 points)***

***Answer*_____**

Q.2. Two train cars moving in the same direction collide and stick with each other. m_2 **= 11,500 kg;** m_1 **= 10,000 kg;** v_{02} **= 10.0 m/s;** and v_{01} **= 7.0 m/s**. Find the velocity of the train cars after collision. ***(3 points)***

Answer _____

Good Luck