***Gulistan Academy***

*Physics (FSc.I)* ***Name:******\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***  *Max.Marks = 32*

*Chapter No. 3 (Second Half) Pass Marks = 32*

1. **Multiple Choice Questions: (10)** *Time = 45 min.*
2. ***In inelastic collision***

(a) total energy is conserved (b) momentum is conserved (c) Both (d) None of these

1. ***When a light body collides with a massive body at rest***

(a) the lighter body bounces back with the same velocity (b) the massive body began to move

(c) the lighter body will stop after collision (d) both (a) & (b)

1. ***A bullet is fired from a gun of mass 2.5 kg with a velocity of 300 ms-1. What will be* the recoil velocity of the gun if the mass of bullet is 0.05 kg?**

(a) 3 ms-1 (b) 6 ms-1 (c) 9 ms-1 (d) 12 ms-1

1. ***About how many % of a rocket is made up of fuel?***

(a) 40 % (b) 70 % (c) 80 % (d) 90 %

1. ***A rocket ejects 10000 kg of mass per second with a velocity of 4000 ms-1. What will* be the acceleration of the rocket is its mass is about 80000 kg?**

(a) 0.5 ms-2 (b) 50 ms-2 (c) 500 ms-2 (d) 5000 ms-2

1. ***Taking off rocket can be explained by***

(a) 1st law of motion (b) 2nd law of motion

(c) law of conservation of momentum (d) law of conservation of energy

1. ***The correct relation for the time of flight of projectile is***

(a) (b) (c) (d)

1. ***In projectile motion, the horizontal acceleration of the body is***

(a) equal to ‘**g’** (b) zero (c) can have any value (d) very large

1. ***Ballistic Missiles are useful only for***

(a) short ranges (b) long ranges

(c) both for short and long ranges (d) all (a), (b) & (c)

1. ***The trajectory of a Ballistic Missile for short ranges and flat earth approximation is***

(a) Elliptical (b) spherical (c) Helical (d) parabolic

1. **Give short answers of the following questions: (14)**
2. *What are Elastic and Inelastic collisions?*
3. *Discuss the case of elastic collision in one direction when* ***m1 = m2*** *and* ***m2*** *is at rest.*
4. *Drive a relation for the force due to water flow on the wall.*
5. *Find an expression for the acceleration of a rocket.*
6. *What do you mean by Projectile Motion?*
7. *Derive a formula for the magnitude of the resultant velocity of a projectile at any instant.*
8. *A ball is thrown with a speed of 30 ms-1 in a direction 300 above the horizon. Determine its horizontal range.*
9. **Give the answer in detail: (8 = 5+3)** 
   1. *A projectile is thrown with an initial velocity* *making an angle* *with the horizontal. Find* ***(a) Maximum Height (b) Time of Flight***
   2. *A hose pipe ejects water at a speed of 0.3 ms-1 through a hole of area 50 cm2. If the water strikes a wall normally, calculate the force on the wall, assuming the velocity of the water normal o the wall is zero after striking.*