Course Name: Physics - 1

Course Code: PHY101

Full Marks: 40

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1.   (5+4+1)
   a. What is the moment of inertia of a disc about one of its diameters?
   b. A car is moving along a straight line PQ. it moves from P to Q in 18s. distance from P to Q is 360m. what are the average velocity and average speed of the car?
   c. Define work.

2.   (3+4+4+4)
   a. A bullet of mass 0.04kg moving with a speed of 90m/s enters a heavy wooden block and is stopped after a distance of 60cm. what is the average resistive force exerted by the block on the bullet?
   b. Derive the equation of path of a projectile.
   c. Derive the equation for the escape speed.
   d. What is the scope and excitement of physics?

3.   (5+3+3+2+2)
   a. Write short note on: i) gravitational force ii) electro magnetic force
   b. How will you weight the sun, that is estimate its mass? The mean orbital radius of the Earth is $1.50*10^8$ km away from the Sun.
   c. Describe electro magnetism briefly
   d. What is reciprocating motion?
   e. What is oscillating motion?