Internal Test

Sub: Mechanics
Course: B.Sc(CS) -I
Maximum marks: 08

Q.1. Locate the position of centre of mass of a semicircular disc and compare it to that of a semicircular ring having same mass and radius. (2)

Q.2. State and prove work energy theorem for conservative forces. Check $\vec{F}$ is conservative or not if

$$\vec{F} = (2xy + x^2)\hat{i} + x^2\hat{j} + 2zx\hat{k}$$ (2)

Q.3. Solve:

$$2\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 4y = x^2 - 2x$$ (2)

Q.4. A particle at point (2,1,3) is acted upon by a force $\vec{F} = 3\hat{i} + 2xy\hat{j} + x^0z^2\hat{k}$. Calculate work done in moving it to point (4,1,3) (2)