

Important Question

Short Answer Type Questions

- Q1. Find a Particular Solution of $\frac{d^2y}{dx^2} + y = \sin x$
- Q2. What is the relationship between y and φ .
- Q3. Solve $(y+z) + (z+x) q = x + y$
- Q4. Show that the differential equation –
 $P = 5x - 4y + 3, q = 4x + 5y + 2$ do not possess any common solution.
- Q5. A particle moves along a curve whose parametric equations are $x = e^{-t}, y = a \cos 3t, z = b \sin 3t$
Where t is the time. Find the magnitude of the velocity.
- Q6. Find a complete integral of $P = (qy + z)^2$

Long Answer Type Questions

- Q1. Solve $(x+2)\frac{d^2y}{dx^2} - (2x+5)\frac{dy}{dx} + 2y = (x+1)e^x$
- Q2. Solve $(D^2 - 6DD' + 9D'^2)Z = 12x^2 + 36xy$
- Q3. A hemisphere rests in equilibrium on a sphere of equal radius, show that the equilibrium is unstable when the curved surface is in contact, and stable when the flat surface of the hemisphere rests on the sphere.
- Q4. Five weightless rods of equal length are jointed together so as to form a rhombus ABCD with one diagonal BD. If a weight W be attached to C and the system be suspended at A. Show that there is a thrust in BD equal to $w/\sqrt{3}$.