UNIT 1 PARTIAL DIFFERENTIAL EQUATIONS

PART A

1. Form the PDE by eliminating a and b from $z = (x^2 + a^2)(y^2 + b^2)$

2. Find the PDE by eliminating the arbitrary constants in $z = a(x + y) + b$

3. Form the Partial differential equations by eliminating arbitrary constants a and b from $(x+a)^2 + (y-b)^2 = z$

4. Form the PDE by eliminating the arbitrary constants from $z = (x-a)^2 + (y-b)^2 + 1$

5. Eliminate the arbitrary function f from $z = f\left(\frac{x}{y}\right)$ and from PDE

6. Solve $(D^2 + 2DD')Z = 0$

7. Solve $(D^2 - 4DD' + 4D'^2)Z = 0$

8. Solve $(D^2 + DD' - 2D'^2)Z = 0$

9.Solve $(D^2 - 5DD' + 6D'^2)z = 0$

10.Write the subsidiary equation for $x^2p + y^2q = (x + y)z$

11. Find the complete integral of $q = 2px$