

**ASSIGNMENT-01**

Name of the Student :

Subject Name : Engineering Mathematics-II

Subject Code : 23BBSBS12001

Section : G, K, M

Semester : 2<sup>nd</sup> Semester

Assignment Date : 05-02-2025

Submission Date : 08-02-2025

01. Form a partial differential equation by eliminating a,b,c from  $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$
02. Form a partial differential equation by eliminating the arbitary functions f and g from  

$$z = y \cdot f(x) + x \cdot g(y)$$
03. If  $z = f(x+ay) + \phi(x-ay)$ , prove that  $\frac{\partial^2 z}{\partial y^2} = a^2 \left( \frac{\partial^2 z}{\partial x^2} \right)$
04. Form a partial differential equation by eliminating the arbitary functions from  

$$f\left(\frac{x-a}{z-c}, \frac{y-b}{z-c}\right) = 0$$
05. Solve the partial differential equation  $y^2 p - xyq = x(z-2y)$
06. Solve the partial differential equation  $py + qx = xyz^2 (x^2 - y^2)$
07. Solve the partial differential equation  $(y-z)p + (z-x)q = (x-y)$
08. Solve the partial differential equation  $(y+z)p + (z+x)q = (x+y)$
09. Solve the partial differential equation  $px(x+y) - qy(x+y)q + (x-y)(2x+2y+z) = 0$
10. Find the complete intergral of  $16p^2z^2 + 9q^2z^2 + 4z^2 - 4 = 0$
11. Find the complete intergral of  $p^2 + q^2 - 2px - 2qy + 2xy = 0$
12. Solve the partial differential equation  $p^2q^2 + x^2y^2 = x^2q^2(x^2 + y^2)$
13. Find the complementary function of  $(D_x + 2D_y - 3)(D_x + D_y - 1)z = 0$
14. Find the complementary function of  $(D_x^3 - D_x^2D_y - 8D_xD_y^2 + 12D_y^3)z = 0$
15. Find the complementary function of  $(D_x^4 - D_y^4)z = 0$