

HOME ASSIGNMENT-1

FYUGP: B.SC.-6TH Semester

Subject: Mathematics (Major & Minor)

Paper: Partial Differential Equation

Marks-20

Assignment Date: 16-04- 2026

Date of Submission: 23-04-2026

1. Find The general Solution of the equation

$$x^2 \frac{\partial z}{\partial x} + y^2 \frac{\partial z}{\partial y} = (x + y) z$$

2. Find Complete integral of

$$2(z + xp + yz) = yp^2$$

3. Show that equations

$$xp - yq = x$$

$$x^2 p + q = xz$$

are compatible and find their solution.

4. Find the canonical form of the following PDE and find the solution

$$u_x + 2x u_y = 2xu \text{ with } u(x, 0) = x^2$$
