

Unit-1

2022-23(EVEN SEM) University Questions Unit-1

1. Obtain a partial differential equation that governs the family of surfaces $z = (x - \alpha)^2 + (y - \beta)^2$
2. Find the complete integral of the partial differential equation $z = px + qy + \frac{p}{p+q}$ $p = \frac{\partial z}{\partial x}$ $q = \frac{\partial z}{\partial y}$.
3. Find the general solution of the partial differential equation $(y+z)p + (z+x)q = (x+y)$.
4. Find the solution of the partial differential $(2D^2 + 5DD' + 3D'^2)z = ye^x$ $\frac{\partial}{\partial x} = D$ $\frac{\partial}{\partial y} = D'$
5. Find the complete solution of PDE $p^2 + q^2 = pz$.

2022-23(ODD SEM) University Questions Unit-1

1. Find partial differential equation(PDE) by eliminating the arbitrary a and b from $z = ax + by + a^2 + b^2$
2. Solve the PDE, $\frac{\partial^2 z}{\partial x^2} - \frac{\partial^2 z}{\partial y^2} = 0$
3. Solve the PDE $(mz - ny)p + (nx - lz)q = ly - mx$.
4. Solve $(x^2 D^2 - y^2 D'^2)z = xy$ $\frac{\partial^2}{\partial x^2} = D^2$ $\frac{\partial^2}{\partial y^2} = D'^2$
5. By Charpit's method, find the complete solution of PDE $px + qy - pq = 0$.

2021-22 University Questions Unit-1

1. Solve the following Partial Differential Equation $(D^2 + DD')z = 0$
2. Drive the Partial Differential equation by eliminating the constant a and b from $z = ax + a^2 y^2 + b$
3. Solve the PDE $(D - D' - 1)(D - D' - 2)z = \sin(2x + 3y)$.
4. Solve $x^2 \frac{\partial^2 z}{\partial x^2} - 4xy \frac{\partial^3 z}{\partial x \partial y} + 4y^2 \frac{\partial^2 z}{\partial y^2} + 6y \frac{\partial z}{\partial y} = x^3 y^4$
5. Solve $(zx + y)p - (x + yz)q = x^2 - y^2$.

2020-21 University Questions

Unit-1

1. What is auxiliary equation of Charpit Method ?
2. Solve the PDE $z = px + qy + \sqrt{1 + p^2 + q^2}$.
3. Solve $x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^3 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} = x^m y^n$.
4. Solve the PDE $D(D + D' - 1)(D + 3D' - 2)z = x^2 - 4xy + 2y^2$.
5. Solve the PDE $(x^2 - y^2 - yz)p + (x^2 - y^2 - zx)q = z(x - y)$.

2019-20 University Questions

Unit-1

1. Solve the PDE $yq - xp = z$?
2. Solve the Cauchy's problem $u_x - u_y = 0, u(x, 0) = x$.
3. Solve the PDE $(D^2 - DD' - 2D'^2)z = (y - 1)e^x$.
4. Solve the PDE $(D + 1)(D + D' - 1)z = \sin(2x + 3y)$.
5. Solve $x^2 \frac{\partial^2 z}{\partial x^2} - 4y^2 \frac{\partial^2 z}{\partial y^2} - 4y \frac{\partial z}{\partial y} - z = x^2 y^2 \log y$