Engineering Mathematics-II (BT-202) Unit-03 PYQ Analysis (2022-2025)

UNIT-03 TOPICS

- Formulation of Partial Differential Equations
- Linear Partial Differential Equations
- Non-Linear Partial Differential Equations
- Homogeneous Linear Partial Differential Equations with Constant Coefficients

QUESTIONS EXTRACTED FROM PREVIOUS YEAR PAPERS

1. Form the partial differential equation by eliminating arbitrary constants.

2. Form the partial differential equation by eliminating arbitrary functions.

3. Solve first order linear partial differential equations using Lagrange's method.

4. Solve non-linear partial differential equations of first order.

5. Solve homogeneous linear partial differential equations with constant coefficients.

6. Solve equations using Charpit's method.

7. Solve: $(D^2 - DD' - 2D'^2)z = 0$

8. Solve: $(D^2 - 3DD' + 2D'^2)z = e^{(x+y)}$

9. Solve: $(D - D')^2 z = \sin(x+y)$

10. Solve: $(D^2 + DD' - 2D'^2)z = \cos(x-y)$

11. Solve homogeneous partial differential equations using operator method.

12. Solve equations reducible to standard forms.

13. Find complete integral of first order PDE.

14. Solve PDE by separating variables.

15. Solve linear PDE using auxiliary equations.

MOST REPEATED QUESTIONS

- Formation of Partial Differential Equations
- Lagrange's Linear PDE
- Homogeneous Linear PDE with Constant Coefficients
- Operator Method Problems
- Charpit's Method

HIGH CHANCE QUESTIONS FOR NEXT EXAM

1. Form PDE by eliminating arbitrary constants/functions.

2. Solve first order PDE using Lagrange's method.

3. Solve PDE using Charpit's method.

4. Solve homogeneous PDE with constant coefficients.

5. Solve PDE using operator method.

6. Solve equations involving exponential and trigonometric functions.

7. Solve reducible PDE equations.

IMPORTANT FORMULAS

1. Standard Linear PDE:
$Pp + Qq = R$

2. Lagrange's Auxiliary Equations:
$dx/P = dy/Q = dz/R$

3. Differential Operators:
$D = \partial/\partial x$
$D' = \partial/\partial y$

4. Complementary Function + Particular Integral:
$z = C.F. + P.I.$

EXAM PREPARATION TIPS

• Practice operator method problems daily.
• Learn auxiliary equations carefully.
• Revise standard forms of PDE regularly.
• Focus on repeated PYQ numericals.
• Practice trigonometric and exponential PDE questions.

Topic	Frequency in PYQ
Lagrange's PDE	★★★★★
Homogeneous PDE	★★★★★
Operator Method	★★★★★
Formation of PDE	★★★★
Charpit's Method	★★★★
Reducible PDE	★★★