

Partial Differential Equations 2024 - Minor 3

Each question carries 4 marks.

1. Define heat kernel for \mathbb{R}^n . Explain why is it symmetric and smooth.
2. What is d'Alembert's formula for wave equation and explain its domain of determinacy.
3. Reduce the equation $u_{xx} + x^2 u_{yy} = 0$ to a canonical form.
4. Derive the fundamental solution of heat equation.

OR

Derive the d'Alembert's formula for one dimensional wave equation.

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