MMA-C213
PARTIAL DIFFERENTIAL EQUATIONS

MM : 100
Time : 3 hrs
L T P
5 2 0

Sessional : 30
ESE : 70
Pass Marks : 40

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

Partial Differential Equations: Origin of First order Partial Differential Equations, Linearpartial differential equations of the first order&Non-linear partial differential equations of the first order,Charpit's method, Jacobi's method, Cauchy's problems for the first order equations,

Partial Differential Equations: Homogeneous linear partial differential equations with constant coefficients. Non-homogeneous linear partial differential equations with constant coefficients, Linear partial differential equations of order two with variable coefficients, Partial differential equation of second order Monge's Method.

Boundary value problems: Method of separation of variable, One dimentional wave equation, Two dimentional wave equation, One dimentional heat equation, Two dimentional heat equation,Laplace equation and solution of Laplace equation.

Fourier Transform: Fourier Integral and their representation, Different forms of Fourier integral theorem (or formula), Infinite Fourier Transform, Finite Fourier Transform, Solution of Partial differential equations using Laplace and Fourier Transform.

Text /Reference Books

1. G.F. Simmons, Differential equation with Applications and Historical Notes, Tata Mgraw Hill
2. W.I. Martin and E. Reissner, Elementary Differential Equations, Addison-Wesley Publishing Company
3. I. G. Petrovaski, Ordinary Differential Equations, Moscow State University publishing
4. I.N.Sneddon, A text book of Partial Differential Equations, McGraw-Hill
5. M.D.Raisinghania, Advanced Differential Equations, S.Chand Pub.