New College

ORDINARY DIFFERENTIAL EQUATIONS

B.A./B.Sc.-I
SECOND SEMESTER

JEEVANSONS PUBLICATIONS

SYLLABUS

Kurukshetra University, Kurukshetra

B.A. / B. Sc. 1st Year

SECOND SEMESTER

ORDINARY DIFFERENTIAL EQUATIONS : (BM - 122)

Maximum Marks : B.A. – 26
B.Sc. – 40

Time Allowed : 3 Ho

Section - I

Geometrical meaning of a differential equation. Exact differential equations, integrat factors. First order higher degree equations solvable for x, y, p. Lagrange's equations, Clairau equations. Equations reducible to Clairaut's form. Singular solutions.

Section - II

Orthogonal trajectories in Cartesian coordinates and polar coordinates. Self orthogo family of curves. Linear differential equations with constant coefficients. Homogeneous linea ordinary differential equations. Equations reducible to homogeneous.

Section - III

Linear differential equations of second order. Reduction to normal form. Transformat of the equation by changing the dependent variable / independent variable. Solution by opera of non-homogeneous linear differential equations. Reduction of order of a differential equat Method of variations of parameters. Method of undetermined coefficients.

Section - IV

Ordinary simultaneous differential equations. Solution of simultaneous differen equations involving operators $x \, (d / dx)$ or $t \, (d / dt)$ etc. Simultaneous equation of the f $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be ex General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Metho auxiliary equations.

Note. *The examiner is requested to set **nine questions** in all, selecting two questi from each section and **one compulsory question** consisting of five pa distributed over all the four sections. Candidates are required to attempt questions, selecting at least one question from each section and the compuls question.*

Maharishi Dayanand University, Rohtak

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Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators $x (d / dx)$ or $t (d / dt)$ etc. Simultaneous equation of the form $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact. General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Method of auxiliary equations.

Note. *The question paper will consist of **five** sections. Each of the first four sections will contain two questions and the students shall be asked to attempt **one** question from each section. **Section – V** will contain **six** short answer type questions without any internal choice covering the entire syllabus and shall be **compulsory.***

1
3
4
6.1,2,
7

1 OR 2
3,4
6.1,2 if time 3
7

CONTENTS