CHAPTER 29

MATHEMATICAL SCIENCES
MATHEMATICS

Doctoral Theses

383. ANURADHA
Quasi- Ideals, Bi- Ideals and Weakly Prime Ideas in Ternary Semirings.
Supervisor : Dr. S. K. Bhambri
Th 18927

Abstract

Compiles the fundamental notions and propositions on ternary semirings. Introduces the notions of (m, (p,q), n)-Quasi-ideals and (m, (p,q), n)-Bi-ideals in ternary semirings and give their examples. Also analysis some standard properties related to the same. Studies the concept of minimal quasi-ideals in ternary semiring and prove some standard results analogous to ring theory. Studies the notion of minimal bi-ideals in ternary semirings and find the relation in terms of regular ternary semirings. Introduces the notions of prime and semiprime quasi-ideals in ternary semirings and some relevant counter examples are also indicated. Also introduces the notion of S-prime quasi-ideal and some results related to the same have been discussed.

Contents

384. ARYA (Chaman Prakash)
On Some Generalizations of Continuity of Multifunctions.
Supervisors : Dr. J. K. Kohli and Dr. R. Panda
Th 19100

Abstract

Studies notions of strong continuity of Levine and perfect continuity due to Noiri are extended to the framework of multifunctions and their basic properties. Extends the notion of cl-supercontinuity to the realm of multifunctions. The notion of almost cl-supercontinuity to the framework of multifunctions and the notion of quasi cl-supercontinuity of functions to the realm of multifunctions

Contents

385. BHATIA (Meetu)
Some Aspects of Optimality and Duality in Vector Optimization.
Supervisor : Dr. Surjeet Kaur Suneja
Th 18928

Abstract

Studies certain optimality and duality aspects in vector optimization. Discusses some important generalizations of convex functions over cones and study optimality conditions and duality results for vector optimization problems. Studies higher order optimality and duality results for optimization problems. Introduces higher order convex, higher order cone pseudoconvex, higher order strongly cone pseudoconvex and higher order cone quasiconvex functions.

Contents

386. DHALL (Deepika)
HIgh Accuracy Numerical Methods for the Solution of Nonlinear Boundary Value Problems.
Supervisor : Prof. R. K. Mohanty
Th 18929

Abstract

Discusses some formal methematical concepts required to develop highly accurate numerical schemes for the solutions of boundary value problems. Presents a new three point variable mesh method of accuracy)(h_1^3) for the solution of second - order nonlinear ordinary integro-differential equations with homogeneous functions in integral from subject to natural boundary conditions. Discusses a new numerical methods of accuracy of O(h_k^3) based on arithmetic average discretizations for the solution of the nonlinear integro-differential equation subject to essential boundary conditations. Developes a third order variable mesh method based on Numerov type discretization. Reports a new nine point compact discretization of order two in y- and order four in x-directions, based on cubic spline approximation for the solution of two dimensional quasi-linear elliptic partial differential equations and describes how discretization is able to handle Poisson's equation in polar coordinates using nine-point compact stencil, discusses a new Numerov type stable method on a variable mesh based on cubic spline approximations for the solution of two-dimensional nonlinear elliptic boundary value problems subject to Dirichlet boundary conditions.

Contents

387. SINGH (Suruchi nee Suruchi)
Class of Efficicnt Finite Difference Discretization for the Solution of Second Order Quasi-linear Hyperbolic Equations.
Supervisor : Prof. R. K. Mohanty
Th 19099

Abstract

Considers one-space dimensional quasi-lenear hyperbolic partial differential equation. Studies a new three-level implicit co mpact finite difference discretization of $O(k^2 + k^2h^2 + h^4)$, based on cubic spline approximation, for the solution of one-space dimensional second order quasi-linear hyperbolic partial differential equations. Purposes two new three-level implicit methods of $O(k^2 + k^2h_1 + h_1^3)$ one based on Numerov type compact discretization and the other based on cubic spline approximation on a non-uniform mesh for the solution of one-space dimensional non-linear hyperbolic partial differential equation.

Contents

388. UPRETI (Priti)
On Some Generalized Orlicz Type Spaces.
Supervisors : Dr. Pawan K. Jain and Dr. Pankaj Jain
Th 18930

Abstract

Studies a unification of the spaces L_Φ and X^p, to be denoted by X_Φ. Focuses on the Orlicz spaces generated by G-functions. Such spaces are denoted by L_G. The inclusion relation between L_G-spaces is studied. Studies the product of X_Φ. spaces. Two types of products are discussed namely, $X_{\Phi 1} \odot X_{\Phi 2}$ and $X_{\Phi 1} \otimes X_{\Phi 2}$.

Contents

Further properties of generalized orlicz spaces. 4. Imbedding and Sobolev type inequality of generalized orlicz spaces. 5. On product of generalized orlicz spaces. 6. On product of victor valued orlicz spaces. References.

M.Phil Dissertations

389. AGARWAL (Reema)
Radical Formulae for Submodules and Rings Satisfying the Radical Formula.
Supervisor : Dr. Atul Gaur

390. BRAHMA PRAKASH
Study of Some Problems on the Motion of a Gas Bubble in an Incompressible Fluid.
Supervisor : Dr. Dinesh Khattar

391. KHUSHBOO
Optimization Reformulations and Computational Methods of Generalized Nash Equilibrium Problems.
Supervisor : Dr. C. S. Lalitha

392. NEELESH KUMAR
Finite Difference Schemes for a Class of Elliptic Boundary Value Problems.
Supervisor : Dr. Swarn Singh

393. RATHI (Poonam)
Spectral Synthesis for Banach Algebras.
Supervisor : Prof. Ajay Kumar

394. SONIA
Strongly Prime Group Rings.
Supervisor : Dr. Kanchan Joshi

395. TAHIR NADEEM
Study of Shock Waves in Gases.
Supervisor : Dr. Arvind Patel