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CONTENTS

Abstract: In this paper, we introduce the concept of Ω-closed set of a given L-topological space X and a prime fuzzy set $\Omega \in L^X$, in the framework of generalization of closeness in L-topological spaces. As applications of this notion, we present and investigate some properties of Ω-regular generalized closed set, Ω-regular semi closed set, Ω-regular strongly semi closed set. Characterizations of Ω-regular generalized extremely disconnected L-topological spaces via various kinds of Ω-generalized closed sets are given.

Abstract: We obtain sufficient conditions for existence of fixed point of extension of Kannan type mappings defined on a generalized metric space.

Abstract: We establish the existence of maximal separation of a generalized disconnected generalized topological space and study its properties. We define and discuss generalized connected subsets and generalized components of a GTS. Also, we introduce and characterize γ-completely connected GTS. We study the generalized connectedness of image and inverse image of generalized connected subsets and establish the intermediate value theorem.

Abstract: In this paper two generalizations of Bor's result [2] are given, an extension as well as an improvement.

Abstract: In this paper, we consider the oscillation properties of m^{th} order netural difference equations of the form

$$\Delta^m \Big[x(n) + cx(\tau(n))\Big] + q(n)f(x(\sigma(n)) = 0, \quad n \geq n_0$$

Sufficient conditions are established for the existence of positive solutions and for oscillation of bounded solutions of the above equation. Combination of these conditions provides necessary and sufficient conditions for oscillation of bounded solutions of the equation. Further, the results are generalized to equations in which c is a sequence $c(n)$ and a certain type of a forcing term is present.

Abstract: A two dimensional problem of reflection and refraction of generalized magneto-thermo-viscoelastic waves at an interface between two dissimilar semi-infinite solids in context of two linear generalized theories of thermoelasticity namely Lord-Shulman (L-S) as well as for Green-Lindsay (G-L) theories, is studied in this paper. The amplitude ratios for different reflected and refracted waves have been calculated for longitudinal and transverse wave incidence cases. The effects of viscosity, magnetic field and thermal field on reflection and refraction coefficients are studied. Numerical values of complex absolute amplitude ratios have been computed and plotted against the angles of incidence for L-S theory. The results are also compared with those without magnetic, thermal and viscous effects, graphically.

Abstract: A vector-valued ratio type mixed Lagrange function is introduced to study mixed saddle point optimality criteria for a class of multiobjective fractional programming problems involving differentiable n-set functions. Further, a mixed Bector type dual is proposed and duality results are established under generalized $(\Im, \rho, \theta)$-convexity assumptions on the functions.

Abstract: In this paper, a new system of generalized implicit variational-like inclusions involving (A, η)-monotone mappings in the framework of Hilbert spaces is introduced and then based on the generalized resolvent operator technique associated with (A, η)-monotonicity, the approximation solvability of solutions using an iterative algorithm is investigated. The results in this paper extend and improve some known results from the literature.

Abstract: In this paper, a mathematical model is proposed to study the effect of pollutant on a detritus-prey-predator system. The model is developed with five state variables, viz., biomass of plant litter, biomass of micro-organisms, biomass of predators of detritivores, concentration of environmental pollution and concentration of pollutant in the biomass of micro organisms. It has been assumed that the environmental pollution affects the biomass of micro-organisms thereby affecting the growth of other species of the system. In the analysis, all the feasible equilibrium points of the system have been obtained and studied. The local stability and non-linear stability of the non-trivial equilibrium point has been carried out using a suitable Liapunov function. Finally numerical support for the analytical results are given before the conclusion of the paper.

Abstract: In the present paper, an analytical solution to the problem of three-dimensional free convective flow with heat and mass transfer through a porous medium with variable permeability in the presence of a uniform magnetic field (applied in all three directions) is presented. The porous medium is considered to be bounded by an infinite vertical porous plate and the free stream velocity is assumed to be uniform. The expressions for velocity, temperature, concentration, skin friction and Nusselt number have been obtained. The effects of different physical parameters like modified Grashoff number, Schmidt number and Eckert number on the velocity, temperature, concentration, skin friction and Nusselt number have been analyzed and the results are presented graphically.

Abstract: In this paper, we prove some strong convergence results for the Jungck-Mann iteration process considered in Banach spaces for a pair of nonselfmappings. We also establish similar other result on Jungck iteration process as a special case. Our results are generalizations and extensions of some of the existing ones in literature especially Imoru and Olatinwo [7], which is itself a generalization of many others in literature.

Abstract: We show that a random trigonometric interpolation polynomial converges in probability to a stochastic integral.

Abstract: Let D be a bounded symmetric domain in $C^n (n > 1)$ with Bergman-*Šilov* boundary b. The spaces $B_{pq\lambda} (0 < p < q < \infty$ and $0 < \lambda < \infty)$ of holomorphic functions with norm $\left(\int_0^1 (1-r)^{n\lambda\left(\frac{1}{p}-\frac{1}{q}\right)-1} M_q^\lambda (r, f) dr \right)^{1/\lambda}$ are considered. Estimates for the Fourier coefficients of a function $f \in B_{pq\lambda}$ are obtained, generalizing a result, on the unit disc, of Gvaradze (1977). The corresponding spaces $b_{pq\lambda}$ of pluriharmonic functions are introduced and it is shown that $b_{pq\lambda}$ is self-conjugate generalizing a result of J. Mitchell (1981) who studied B_{pqq} on bounded symmetric domains.

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