Indian Journal
of Mathematics
Volume 57, No. 1, 2015

CONTENTS

Abstract: The purpose of this paper is to study lacunary double statistical convergence of order α. Furthermore some inclusion relations have been examined. We also introduce a new sequence space by combining Orlicz function and lacunary double statistical convergence.

Abstract: In this paper, the direct sum of a finite family of matroids is generalized to that of a finite family of (L, M)-fuzzy matroids. An (L, M)-fuzzy direct sum matroid can be characterized by means of its level L-direct sum matroids. We establish connections between an (L, M)-fuzzy direct sum matroid and its factor (L, M)-fuzzy matroids. The functors preserve the direct sums that exist in both the category of bi-fuzzy matroids and that of fuzzifying matroids, the category of fuzzifying matroids and that of $[0, 1]$-matroids, the category of $[0, 1]$-matroids and that of matroids. Finally, we examine the additivity of rank functions for M-fuzzifying matroids and L-matroids.

Abstract: In this paper, we study a series associated with Fourier series and conjugate series of a Fourier series by using absolute Riesz summability of positive order and a special but precise type of Riesz mean and obtain a few results which not only include some of the known results due to Bosanquet and Hyslop [1], Mohanty [12] and Nayak [13] but also provide sharper as well as new results. A result for absolute Cesàro summability of negative order has also been obtained which improves a known result due to Nayak [13].

Abstract: The primary purpose of this paper is to obtain minimum distances between pairs of subsets in a metric space with the help of multivalued cyclic mappings. This is an application of setvalued analysis. We define two setvalued cyclic contraction mappings with the help of which we establish two proximity point theorems. The problem is here treated as that of finding a global optimal solution of a fixed point inclusion. Our main results have several corollaries and are supported with examples. The examples show that the corollaries are properly contained in the corresponding theorems. We give applications of our results for singlevalued cyclic mappings.

Abstract: In this paper we prove the existence as well as approximate the solutions of periodic boundary value problems of first order ordinary nonlinear hybrid differential equations. We rely our results on a recent hybrid fixed point theorem of Dhage [4] in partially ordered normed linear spaces and are proved under weaker continuity

and Lipschitz conditions. A realization is also indicated to illustrate the abstract theory developed in the paper.

Abstract: In this paper, we propose and analyse an age-dependent branching process model of a renewable resource subject to periodic harvesting. We obtain an explicit expression for the mean number of individuals at any time t and also obtain an optimal harvesting policy.

Abstract: In this paper, we investigate the topological structure of the set of $\mathcal{I}$-convergent nets on a metric space.

Abstract: Let $f \in C^p([-1,1])$, $p \geq 0$ and let L be a linear left fractional differential operator such that $L(f) \geq 0$ throughout $[0,1]$. We can find a sequence of polynomials Q_n of degree $\leq n$ such that $L(Q_n) \geq 0$ over $[0,1]$, furthermore f is approximated uniformly by Q_n. The degree of this restricted approximations is given by an inequalities using the modulus of continuity of $f^{(p)}$.

****