Indian Journal of Mathematics Volume 58, No. 1, 2016

CONTENTS

Biljana Radičić

CIRCULANT MATRICES WITH A SPECIAL (GEOMETRIC AND ARITHMETIC) SEQUENCE 1-16

Abstract: In this paper, we improve the formulations of Theorem 3.8 [3] and Theorem 2.6 [1] adding some assumptions in the formulations of these theorems and we determine the Moore-Penrose inverses and the group inverses of circulant matrices with geometric and arithmetic sequence which do not satisfy these assumptions. The Moore-Penrose inverses and the group inverses of circulant matrices with constant sequence are also derived. The obtained results are illustrated by examples.

T. D. Narang and Sahil Gupta

On ε -coapproximation in quotient spaces 17-29

Abstract: By extending the concept of ε -coapproximation available in normed linear spaces to metric spaces, we discuss some results on the existence and uniqueness of ε -coapproximation in quotient spaces and subspaces of metric linear spaces. We also characterize ε -coproximinality and ε -pseudo coChebyshevity in metric linear spaces.

1

P. N. Natarajan

Weighted means for double sequences and double series 31-42

Abstract: In the present paper, entries of 4-dimensional infinite matrices, double sequences and double series are real or complex numbers. We introduce Weighted mean methods for double sequences and double series and study them in the context of a new definition of convergence of a double sequence and a double series introduced earlier by the author in [3].

Santosh B. Joshi and Girish D. Shelake

ON SUBCLASS OF UNIFORMLY CONVEX FUNCTIONS INVOLVING CERTAIN FRACTIONAL CALCULUS OPERATOR 43-57

> **Abstract:** In the present investigation we obtain coefficient estimates, growth and distortion theorems, extreme points of subclass of uniformly convex functions defined by ceratin fractional calculus operator. Furthermore, we discuss a class preserving integral operator, radius of starlikeness and closure properties for functions in this generalized class.

Aniruddha Palit and Dhurjati Prasad Datta

Existence of limit cycles in a class of non-symmetric Liénard systems 59-93

Abstract: We present simple extensions of the classical Liénard theorem on the existence of at least one limit cycle to a class of non-symmetric Liénard systems $\dot{x} = y - F(x)$, $\dot{y} = -g(x)$, where g(x) is odd but F(x) is not. We also obtain upper and lower estimates of the amplitude of a limit cycle. A class of a non-symmetric Van der Pol equation admitting a unique limit cycle is studied as a special case.

Seung Hyun Kim, Mee Kwang Kang and Byung Soo Lee

Strong convergence and Δ -convergence in CAT(0)-space in three-step iterative schemes with applications 95-116

> Abstract: In this paper, we introduce a three-step iterative scheme and show that our three-step iterative scheme converges faster than all of the modified Mann iterative scheme, the modified Ishikawa iterative scheme and the Noor iterative scheme for contractive mappings. Also, we consider a strong convergence and a Δ -convergence of the three-step iterative scheme for two totally asymptotically nonexpansive mappings in CAT(0)-spaces. Our results extend and unify the corresponding ones in [3, 7, 8, 11].

Muhammad Arshad, Eskandar Ameer and Abdullah Shoaib

Some New Fixed point results in metric spaces with graph 117-134

> **Abstract:** The aim of this paper is to extend the concept of uniform local multivalued contractions to the uniform local multivalued graph contractions and obtain some new fixed point theorems concerning metric transforms for such contractions. An example is included to demonstrate that our result is a proper generalization of previous results.

> > ******