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CONTENTS WITH ABSTRACT

Abstract: This paper studies recursive sequences of the form $y_n = a_n y_{n-1} + y_{n-2}$ with positive integral coefficients. Such sequences are of particular interest as their terms appear in the numerators and denominators of continued fraction convergents. Several properties of terms related to the coefficient sequence are determined as well as some coefficients with maximal characteristics.

Abstract: In this paper we investigate quantitative properties of eigenvalues and spectral singularities of non-selfadjoint second order q-difference equations by using the uniqueness theorem of analytic functions. Furthermore, we introduce principal vectors corresponding to eigenvalues and spectral singularities.

Abstract: It is well known that JB^*-algebras properly include all C^*-algebras. We look at relationships between the distances from a point to the set of invertible elements and to the set of unitaries in a JB^*-algebra $\mathcal{J}$; various formulae are deduced for cases when the point is of norm ≤ 1, when $\mathcal{J}$ is of tsr 1 and when $\mathcal{J}$ is finite- dimensional. In the sequel, some results are obtained with particular focus on the notion of *unitary rank* of an element in connections with its distances to the unitaries and to the invertibles.

Abstract: In this paper, we introduce the concepts of weakly $\tilde{g}$-closed sets and weakly $\tilde{g}$-open sets in a topological space which are weaker forms of $\tilde{g}$-closed sets and $\tilde{g}$-open sets, respectively. Moreover, many properties and relationships of such sets are investigated.

Abstract: Let $G = (V, E)$ be a graph. A set $D \subseteq V$ is said to be a vertex component dominating set if for every component $\langle S\rangle \subseteq \langle V - D\rangle$ there exists a vertex $v \,\epsilon\, D$ such that v is adjacent to every vertex of S. The vertex component domination number $\gamma_{vc}(G)$ of G is the minimum cardinality of a vertex component dominating set of G In this paper, some properties of this new parameter are envisaged.

Chandra Kishore Mohapatra and Namita Das

Abstract: In this paper it is shown that if $\phi : \mathbb{T} \longrightarrow \overline{\mathbb{D}}$ is a continuous function then $f \circ \phi$ need not be in $L^2(\mathbb{T})$ for all $f \in H^2(\mathbb{T})$ and it is shown that for a particular class of sequences $\rho(n)$, $f \circ \phi \in L^2(\mathbb{T})$ for all $f \in H^2(\rho)$. Moreover, we study the boundedness and compactness of the composition operator $C_\phi : H^2(\rho) \longrightarrow H^2(\rho)$ defined by $C_\phi f = f \circ \phi$, where $f : \mathbb{D} \longrightarrow \mathbb{C}$ is in $H^2(\rho)$ and $\phi : \mathbb{D} \longrightarrow \mathbb{D}$ is analytic. We have shown that sufficient conditions on ϕ such as (i) ϕ one-to-one or (ii) $\phi' \in H^\infty$ ensure the boundedness of the operator C_ϕ on $H^2(\rho)$. In each case we have obtained the upper bounds on $\|C_\phi\|$. Further, using the concept of reproducing kernel we have also obtained a lower bound for $\|C_\phi\|$ whenever $\|C_\phi\|$ has a finite upper bound. One last result of this paper deals with the compactness of C_ϕ. We have shown that if ϕ has angular derivative at some point z' on $\mathbb{T}$ and is bounded away from zero then C_ϕ cannot be a compact operator.

T. Roy and K. S. Chaudhuri

Abstract: This study is concerned with an economic order quantity model for deteriorating items in which the demand rate of an item is of a ramp-type. It is assumed that a constant fraction of the on-hand inventory deteriorates per unit of time. The shortages in inventory which are fully backlogged are assumed. The model is discussed for an infinite time-horizon and our objective

is to minimize the total inventory cost per unit time. Several numerical examples are taken up to illustrate the solution procedure and sensitivity analysis is also carried out.

Abstract: Let $U = \{z \in \mathbb{C} : |z| < 1\}$ be the unit disk in $\mathbb{C}$. The purpose of this paper is to prove the boundedness of the generalized Cesàro operators $\mathcal{C}^{b,c}$ on the Hardy space $H^p(U)$, $0 < p < \infty$, and the mixed space $\mathcal{A}^{p,q}_{\mu}(U)$, $0 < p, q < \infty$, (μ is a positive Borel measure on the interval $[0, 1)$), when $Re\ (b + 1) > Re\ c \geq 1$. We solved an open problem in the recently published paper: M. R. Agrawal, P. G. Howlett, S. K. Lucas, S. Naik, S. Ponnusamy, Boundedness of generalized Cesàro averaging operators on certain function spaces, *J. Comput. Appl. Math.* **180** (2005), 333-344.

Abstract: In this paper, we present alternative proofs of some of Ramanujan's modular equations of degree 3 by employing some theta-function identities.