CONTENTS

Abstract: In this paper, we give some sufficient conditions for the log-concavity of sequences. For example, for a log-concave sequence $\{z_n\}_{n\geq 0}$, we give some sufficient conditions for the log-concavity of $\{z_{n+1} - z_n\}_{n\geq 0}$, where $z_{n+1} - z_n > 0$ for $n \geq 0$. As applications of these results, we study the log-concavity of a number of sequences.

Abstract: In this paper, we introduce a new concept of right n-derivation on near-rings, and provide some examples to establish the existence of this type of map. We study the commutativity laws of near-rings which satisfy some algebraic identities involving right n-derivations on semigroup ideals. We conclude our present study with important examples that demonstrate the necessity of the assumptions used in our results.

Abstract: Using the notion of weighted sharing of sets we investigate the uniqueness problem of a special class of meromorphic function sharing two or three sets containing least number of elements. Our results will provide the best possible answer of a question raised in [3] as well as in [4]. Our results have also improved those in [16] and [17] to a large extent. We have exhibited a number of examples to show that some conditions used in the results are essential.

Abstract: Here we extend our earlier bivariate high order simultaneous fractional monotone constrained approximation theory by pseudo-polynomials to abstract bivariate high order simultaneous fractional monotone constrained approximation by pseudo polynomials, with applications to bivariate Prabhakar fractional calculus and non-singular kernel fractional calculi. We cover the left side of this constrained approximation. So we deal with the following general two-dimensional problem: Let f be a two variable continuously differentiable real valued function of a given order, let L^* be a linear left abstract

fractional mixed partial differential operator and suppose that $L^*(f) \geq 0$ on a critical region. Then for specific and sufficiently large $n, m \in \mathbb{N}$, we can find a sequence of pseudo-polynomials $Q_{n,m}^*$ in two variables with the property $L^*(Q_{n,m}^*) \geq 0$ on this critical region such that f is approximated with rates fractionally and simultaneously by $Q_{n,m}^*$ in the uniform norm on the whole domain of f. This constrained approximation is given via inequalities involving the mixed modulus of smoothness $\omega_{s,q}$, $s, q \in \mathbb{N}$, of highest order integer partial derivative of f.

Mohamed Chhiti and Khalid Kaiba

Abstract: Let $f : A \longrightarrow B$ be a homomorphism of commutative rings and let J be an ideal of B. The amalgamation of A with B along J with respect to f is the subring of $A \times B$ given by $A \bowtie^f J = \{(a, f(a) + j) \mid a \in A, j \in J\}$. This paper investigates the total graph of amalgamated algebras. Our aim is to characterize when the graph is connected and compute its diameter, girth, γ-set and γ_t-set for various contexts of amalgamations. The new results yield new and original examples issued from amalgamated algebras.

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Abstract: In the present paper, we establish coupled fixed point theorems on complex partial metric space using mixed monotone property. An example and application to support our result is presented.

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