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Rajib Mandal and Raju Biswas

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Xin Li, Jie Liang and Ram N. Mohapatra

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Sushanta Kumar Mohanta and Ratul Kar

SOME FIXED POINT RESULTS IN AN ORDERED b -METRIC SPACE WITH AN
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John R. Graef, G. Purushothaman, K. Suresh and E. Thandapani

OSCILLATION CRITERIA FOR FOURTH ORDER DELAY DIFFERENTIAL EQUATIONS
USING CANONICAL TRANSFORMATIONS 229-245

Abstract: The authors investigate the oscillatory nature of the fourth-order nonlinear delay differential equation

$$(Qy)(t) + p(t)y^\alpha(\sigma(t)) = 0,$$

where $Qy = (a_3(a_2(a_1y')'))'(t)$, under the conditions

$$\int_{t_0}^{\infty} \frac{1}{a_3(t)} dt = \infty, \int_{t_0}^{\infty} \frac{1}{a_2(t)} dt < \infty, \text{ and } \int_{t_0}^{\infty} \frac{1}{a_1(t)} dt < \infty.$$

We first transform the equation into the canonical type equation

$$(b_3(t)(b_2(t)(b_1(t)(b_0(t)y(t))'))')' + F(t)y^\alpha(\sigma(t)) = 0,$$

where

$$\int_{t_0}^{\infty} \frac{1}{b_i(s)} ds = \infty, \quad i = 1, 2, 3,$$

which simplifies the investigation. Comparison techniques and Riccati transformations are used to obtain oscillation criteria for the transformed equation, which in turn implies the oscillation of the original equation. The importance and novelty of the method and results are illustrated with examples.

G. Siva

WEAK CONVERGENCE OF FIXED POINT ITERATIONS IN N-CONE METRIC SPACES

247-266

Abstract: In this article, the notion of weak convergence in metric spaces is expanded to include N-cone metric spaces. Additionally, some theorems on the weak convergence of fixed point iterations of Banach's, Kannan's, Chatterjee's, Reich's, and Hardy-Roger's types of contractions on N-cone metric spaces are proved.

Abhijith Ajayakumar and Raju K George

CONTROLLABILITY OF NETWORKED SYSTEMS WITH NON-LINEARITIES

267-277

Abstract: Using Banach's fixed point theorem, we investigate the controllability of a networked system in which each node possesses both linear and nonlinear components and the linear component of the networked system is controllable. It has been shown that such a networked system is controllable if the non-linear component of each node satisfies certain conditions.

Kshetrimayum Renubebeta Devi and Binod Chandra Tripathy

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Abstract: In this article we introduce the notion of statistical relative uniform convergence of difference double sequence of functions. We have also introduced classes of statistical relative uniform convergence of difference double sequences of functions and study their algebraic and topological properties.
