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COMMON FIXED POINT THEOREMS AND PERIODIC POINT THEOREMS IN CONE METRIC SPACES FOR T-CONTRACTION TYPE MAPPINGS

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AUTHORS' CONTRIBUTIONS

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ABSTRACT

In this paper, we prove common fixed point theorems and periodic point theorems for T- contraction type mappings in the framework of cone metric spaces. Our results in this paper extends and improves upon, among others, the corresponding results of Abbas and Rhoades [1] and Sumitra et al. [2]

Keywords: Common fixed point; periodic point; T- contraction; banach operator pair; cone metric space.

1 Preliminaries

Banach contraction principle is a fundamental result in fixed point theory, which has been used and extended in many different directions. Recently Beiranvand [3] introduced a new generalization of contraction mapping called T-contraction mappings on a metric space which are depending on another function. The concept of cone metric space was introduced by Huang and Zhang [4] where the set of real numbers is replaced by an ordered Banach space as generalization of metric space. They introduced the basic definitions and some properties of convergence of sequences in cone metric spaces. They have proved some fixed point theorems of contracting mappings on complete cone metric spaces with assumption of normality of a cone. Thereafter various authors have generalized the result of Huang and Zhang and have studied fixed point theorems for normal and non normal cones. Subsequently many authors like Abbas and Jungck [5], Abbas and Rhoades [1], Ilic and Rakocevic [6], have generalized the result of Huang and Zhang and studied the existence of common fixed point of a pair of self mappings satisfying a contractive type condition in the frame work of normal cone metric spaces. Recently Morales and Rojas [7], [8], [9] have extended the concept of

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