

SOME EXISTENCE AND UNIQUENESS THEOREMS ON ORDERED METRIC SPACES VIA GENERALIZED DISTANCES UNDER NEW CONTROL FUNCTIONS

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Abstract. The purpose of this paper is to prove some fixed point theorems in a complete metric space equipped with a partial ordering using w -distances together with the aid of an altering functions and new functions of admissible type.

1. Introduction with Preliminaries

Kada et al. [13] initiated the idea of w -distance which was primarily utilized to improve Caristi's fixed point theorem [3], Ekeland's variational principle [5] and the nonconvex minimization theorems whose details are available in Takahashi [25]. Proving existence results on fixed points on partially ordered metric spaces has been a relatively hot topic in metric fixed points theory. In [18], a noted analogue of Banach contraction principle in partially ordered metric space was proved, which also includes interesting applications to matrix equations. Ran and Reurings [18] have further weakened the usual contraction condition but merely up to monotone operators.

In an interesting article, Branciari [2] established a fixed point result for an integral-type inequality, which is a generalization of Banach contraction principle. Vijayaraju et al. [27] obtained a general principle, which paves the way to prove many fixed point theorems for pair of maps satisfying integral type contraction conditions.

A multitude of fixed and common fixed point theorems in metric and semi-metric spaces for compatible, weakly compatible and occasionally weakly compatible pair of mappings satisfying contractive conditions

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