

EXISTENCE OF FIXED POINTS AND BEST PROXIMITY POINTS OF p -CYCLIC BOYD-WONG CONTRACTIONS*

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Abstract

We introduce a new contraction map called p -cyclic Boyd-Wong contraction, defined on the union of p ($p \geq 2$) non empty subsets of a metric space. We give sufficient conditions for the existence of a unique fixed point, best proximity point or periodic point for the map and an iterative method is used to approximate the fixed point and the best proximate point.

MSC: 46H10

keywords: p -cyclic maps, p -cyclic contractions, p -cyclic non expansive maps, best proximity points.

1 Introduction and preliminaries

There are many interesting and useful generalizations of the celebrated Banach contraction theorem. Some of them are given in the literature ([1] to [10]). One of them is given by Boyd and Wong in [1]. The contraction given by Banach is essentially uniformly continuous whereas the contraction given by Boyd and Wong is upper semi-continuous from the right. The continuity condition of the contraction map is thus relaxed. In [6], the following type of maps are introduced, where the maps are not continuous.

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