APPROXIMATING OF FIXED POINTS FOR MULTI-VALUED GENERALIZED $\alpha-$NONEXPANSIVE MAPPINGS IN BANACH SPACES*

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Abstract

In this paper, we study multi-valued generalized αnonexpansive mappings in uniformly convex Banach spaces. We introduce a new multi-valued iterative process and prove some weak and strong convergence results in uniformly convex Banach space. We also study the stability of this iteration process. Further, we provide a numerical example of the multi-valued generalized $\alpha-$nonexpansive mapping. Finally, the convergence of this iteration process to the fixed point for multi-valued generalized $\alpha-$nonexpansive mapping is discussed on this numerical example.

MSC 47H010; 54H25.

keywords: Generalized $\alpha-$nonexpansive mappings, multi-valued mapping, fixed point, iteration process, uniformly convex Banach spaces.

1 Introduction and Preliminaries

Some generalizations of single-valued nonexpansive and the study of related fixed point theorems have been intensively carried out by many authors over

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