ON PERTURBED THREE-STEP ITERATIVE ALGORITHM FOR COMPLETELY GENERALIZED NONLINEAR MIXED QUASIVARIATIONAL INCLUSIONS

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Abstract. In this paper, we introduce a new class of completely generalized nonlinear mixed quasivariational inclusions, which include some known variational inequalities, quasivariational inequalities and quasivariational inclusions as special cases. By using the resolvent operator technique for maximal monotone mappings, we suggest the perturbed three-step iterative algorithm for this class of completely generalized nonlinear mixed quasivariational inclusions, and establish a few existence and uniqueness theorems of solutions for the class of completely generalized nonlinear mixed quasivariational inclusions involving relaxed Lipschitz and strongly monotone mappings, and prove some convergence and stability results of the iterative sequence generated by the perturbed three-step iterative algorithm.

Keywords. Completely generalized nonlinear mixed quasivariational inclusions, perturbed three-step iterative algorithm, relaxed Lipschitz mapping, convergence, stability.

AMS (MOS) subject classification: 47J20, 49J40.

1   Introduction

In 1994, Hassouni-Moudafi [4] introduced successfully a perturbed algorithm for solving a class of variational inclusions. In 1996, Adly [1] established several convergence results for a general class of variational inclusions using the resolvent operator technique for maximal monotone mapping. Later, a few researchers [5], [6], [8], [10], [13] extended the results due to Hassouni-Moudafi and Adly in various aspects. In 2000, Huang-Bai-Cho-Kang [6] gave the convergence and stability of perturbed iterative algorithm for solving a class of generalized nonlinear mixed quasi-variational inequalities. In 2000, Shim-Kang-Huang-Cho [10] introduced a new class of completely generalized

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