Ann. Acad. Rom. Sci.
Ser. Math. Appl.
ISSN 2066-6594 Vol. 9, No. 2/2017

ON SPLIT EQUILIBRIUM PROBLEM, VARIATIONAL INEQUALITY PROBLEM AND FIXED POINT PROBLEM FOR MULTI-VALUED MAPPINGS*

Chibueze Christian Okeke† Oluwatosin Temitope Mewomo‡

Abstract

In this paper, we propose an algorithm involving a step-size selected in such a way that its implementation does not require the computation or an estimate of the spectral radius. Using our algorithm we proved strong convergence theorem for common solution of a split equilibrium problem, a variational inequality problem and fixed point problem for multi-valued quasi-nonexpansive mappings in real Hilbert spaces. Our result generalizes some important and recent results in the literature.

MSC: 47H09; 47H10; 49J20; 49J40

keywords: Split equilibrium problem; variational inequality problem; fixed point problem; maximal monotone mapping; inverse strongly monotone; Multi-valued Quasi-nonexpansive mappings; Hilbert space.

*Accepted for publication in revised form on October 3-rd, 2017

† 215082178@stu.ukzn.ac.za, bueze4christ@yahoo.com Address: School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal, Durban, South Africa;
Paper written with financial Support of Department of Science and Technology - National Research Foundation Center of Excellence in Mathematical and Statistical Sciences

‡mewomoo@ukzn.ac.za School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal, Durban, South Africa