ON VARIOUS TYPES OF COMPATIBLE MAPS AND COMMON FIXED POINT THEOREMS FOR NON-CONTINUOUS MAPS

M. R. Singh**† and Y. Mahendra Singh‡

Received 25:12:2009 : Accepted 24:01:2011

Abstract

Concepts of $S$- and $A$- compatible of type (E), $S$- and $A$- reciprocally continuous are introduced. In this paper, we give a brief discussion on various types of compatible maps and obtain some common fixed point theorems for non-continuous self maps on a metric space. Here the utility of the newly introduced maps viz. $S$- compatible of type (E) and $S$- reciprocally continuous (one sided) in lieu of continuity is shown. Our results improve, generalize or extend the results of H. Bouhadjera (General common fixed point theorem for compatible mappings of type (C), Sarajevo J. Math. 1(14), 261–270, 2005), X. P. Ding (Some common fixed point theorems of commuting mappings II, Math. Seminar Note 11, 301–305, 1983), M. L. Diviccaro and S. Sessa (Some remarks on common fixed points of four mappings, Jnanabha 15, 139–149, 1985), G. Jungck (Compatible mappings and common fixed points (2), Internat. J. Math. & Math. Sci. 11(2), 285–288, 1988), S. M. Kang, Y. J. Cho and G. Jungck (Common fixed points of compatible mappings, Internat. J. Math. & Math. Sci. 13(1), 61–66, 1990), V. Popa (Some fixed point theorems for compatible mappings satisfying an implicit relation, Demonstr. Math. 32(1) (1999), 157–163, 1999), and others.

Keywords: Compatible maps, Compatible of type (E), $S$- and $A$-compatible of type (E), $S$- and $A$-reciprocally continuous, Weakly compatible maps and common fixed points.


**Department of Mathematics, Manipur University, Canhipur–795003, Manipur, India. E-mail: mranjitmu@rediffmail.com

†Corresponding Author.

‡Department of Applied Sciences, Manipur Institute of Technology, Takyelpat–795001, Manipur, India. E-mail: ymahenmit@rediffmail.com