South East Asian J. Math. & Math. Sc.
Vol.6 No.1(2007), pp.51–55

COMMON FIXED POINT THEOREMS FOR INTEGRAL TYPE MAPPINGS IN METRIC SPACES

Renu Chugh and Ramesh Kumar Vats*

Department of Mathematics
Maharshi Dayanand University, Rohtak (Haryana), India

*Department of Mathematics
BRCM College of Engineering and Technology
Bahal, Bhiwani-127028, India
E-mail: ramesh_vats@rediffmail.com

(*Received: June 09, 2005*)

Abstract: In this paper, we prove a common fixed point theorem for a pair of R-weakly commutative of type (Ag) mappings satisfying a general contractive condition of integral type which generalizes the result of Branciari [1].

Keywords and Phrases: R-weakly commutative of type (Ag), fixed point, metric spaces
2000 AMS Subject Classification: 47H10, 54H25

1. Introduction

In 1976, Jungck [2] gave a common fixed point theorem for commuting maps, which generalizes the Banach's fixed point theorem. Later on Sessa [7] defined weak commutativity and proved common fixed point theorem for weakly commuting maps. Further, Jungck [3] introduced more generalized commutativity, so called compatibility as follows:

The pair of f and g is said to be compatible if $\lim_{n\to\infty} d(fgx_n, gfx_n) = 0$, whenever $\{x_n\}$ is a sequence in X such that $\lim_{n\to\infty} fx_n = \lim_{n\to\infty} gx_n = t$ for some t in X, which is more general than that of weak commutativity.

However, the study of common fixed point of noncompatible mappings in metric space has been initiated by Pant [4,5]. In 1994, Pant [4] introduced the concept of R-weakly commuting mappings as follows:

Two self maps f and g of a metric space (X, d) are called R-weakly commuting at a point $x \in X$ if

$$d(fgx, gfx) \leq Rd(fx, gx) \text{ for some } R > 0.$$