Hacettepe Journal of Mathematics and Statistics
Volume 42 (3) (2013), 223 – 229

ON EDELSTEIN TYPE MULTIVALUED RANDOM OPERATORS

Akbar Azam *, Muhammad Arshad † and Pasquale Vetro ‡

Received 19 : 10 : 2010 : Accepted 09 : 05 : 2012

Abstract

The purpose of this paper is to provide stochastic versions of several results on fixed point theorems in the literature.

Keywords: Common fixed point, Multivalued mappings, Random operator, Metric space

2000 AMS Classification: 47H09, 47H10, 47H40, 54H25, 60H25

1. Introduction and Preliminaries

Random operator theory is needed for the study of various classes of random operator equations in probabilistic functional analysis. During the last three decades several results (e.g., see, [3, 4, 6, 8, 10, 11, 13, 14, 15] and references therein) regarding random fixed points of various types of random operators have been established and a number of their applications have been obtained after a survey article of Bharucha Reid [5]. In fact, random fixed point theorems are stochastic generalizations of deterministic/classical fixed point theorems and have important applications in random operator equations, random differential equations and differential inclusions [5, 6, 7, 10]. In the present paper we derive common random fixed point theorems for a sequence of multivalued random operators satisfying Edelstein type contractive condition. We give, also a result of a common random fixed point for a sequence of multivalued random operators that have a common deterministic fixed point. Our paper establish stochastic versions of many Banach type fixed point theorems e.g., see, [2] and references therein.

*Department of Mathematics, COMSATS Institute of Information Technology, Chak Shahzad, Islamabad, 44000, Pakistan. E-mail: (A. Azam) akbarazam@yahoo.com

†Department of Mathematics, International Islamic University, H-10, Islamabad,44000, Pakistan. E-mail: (M. Arshad) marshad_zia@yahoo.com

‡Università degli Studi di Palermo, Dipartimento di Matematica e Informatica, Via Archirafi 34, 90123 Palermo, Italy E-mail: (P. Vetro) vetro@math.unipa.it