

## **ABSTRACT**

Many authors have generalized the well known Banach Contraction Principle in several different forms. We may see for example Rhoades [43] for the case that mapping is single valued. On the other hand Markin [34], and Nadler [36] extended the Banach Contraction Principle to the case that mappings are setvalued defined on complete metric space  $X$  with values as a closed, bounded subset of  $X$ . Later on, many results on fixed point theorems of set valued functions have appeared, for example see Ćirić [5], Fisher [12], Kubiacyk [31], Singh and Whitefield [28] and others.

Contraction operators have been of interest to various authors for many years. In this dissertation we unify the early contraction into a single contraction. In Chapter One, we discuss some basic concepts related to fixed points, fixed point theory and set our terminology. In Chapter Two, we give a historic background of fixed point theory and also present some previous work and results. In Chapter Three, we define a new class of contraction maps called  $A$ -contractions and give its comparison with some already defined contractions and show that with an example that this class of contractions is the proper super class of the some of the previously defined contractions. Further we improve/unify the early results related to contractions of self maps and also for expansion maps. The Chapter Four is devoted to the fixed point theorems of multivalued maps using  $A$ -contraction.