PREFACE

The present dissertation eintitled "Study of Fixed Points of Various contractive Mappings" is the output of my research work in the field of fixed point theory in Hilbert space.

The dissertation consits of five chapters. Chapter-I is introductory in nature which consists of two parts. First part deals with the basic concepts fundamental fixed point theorems and some useful fixed point results needed for our investigations. Part second of this chapter consists of the development of fixed point theory in Hilbert space.

In Chapter-II, a fixed point theorem for semi-generalised ν-contraction mapping in Hilbert space using Parallelogram Law has been established.

In Chapter-III, a fixed point theorem for Kannan type mapping in Hilbert space using Ishikawa iteration scheme has been established. By using the same process of Ishikawa we have extended the above theorem for a pair of mappings and obtained a common fixed point for them.

In chapter-IV, we have introduced a new definition of generalised contraction mapping in H.space.

Definition : Generalised Contraction

Let C be a closed convex subset of a Hilbert space H. A mapping $T : C \to C$ is said to be generalised contraction if for all $x, y \in C$,

$$\|Tx-Ty\|^2 \leq a_1\|x-y\|^2 + a_2\|x-Tx\|^2 + a_3\|y-Ty\|^2 + a_4\|x-Ty\|^2 + a_5\|y-Tx\|^2 + a_6\|(I-T)x-(I-T)y\|^2.$$

Where $a_i \geq 0$, $\sum_1^6 a_i < 1$

Based upon this definition some fixed point theorems using Ishikawa Iteration scheme have been established. Examples are also provided in support of our investigations.

In chapter-V, we have introduced "Pathak type mapping" in Hilbert space and obtained fixed point theorems by using Mann iteration process. Also we have put an example in support of our fixed point theorem.

The references are given at the end of the dissertation and they are arranged in the alphabetical order. The reference bracket [5] means the 5th reference given at the end of this dissertation.