PREFACE

The impact of generalized functions has revolutionalised the classical theory of integral transformations. In the last twenty six years, since the publication of Zemanian's work, interest has been continued for integral transformations of generalized functions. There are still many transformations in the literature whose extension to generalized functions can be stuided. This situation motivated us to study some of the scattered results in the theory of integral transformations. To achieve this, we have studied in this dissertation, the finite Fourier Cosine - sine transformation, within the frame work of generalized functions.

The present dissertation entitled "A STUDY OF FINITE FOURIER COSINE-SINE TRANSFORMATION" is the out come of the research work carried by me in the field of Generalized Integral Transformations.

The investigations in this dissertation are spread over three chapters. The first chapter is introductory and deals with a brief history, the survey of known material (literature), definitions and some useful results required in the development of the work in the subsequent chapters of this dissertation.

In the second chapter testing function space S(I) is constructed. The properties of the space S(I) and its dual

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space $S'(I)$ have also been studied. Again we have extended finite Fourier cosine sine transformations of classical functions to a class of generalized functions by using orthonormal series expansion technique. The inversion and uniqueness theorems are also proved.

The third chapter deals with the characterization and application of the distributional finite Fourier cosine sine transformations.

A triple numbering system is used for all theorems, Leammas and formulae or equations For example Lemma 2.3.4 is the 4th lemma in third section of second chapter. The references are given at the end and they are arranged in alphabetical order. In the text, they have been refered to by putting within rectangular brackets. For example [2,P,34] means the page 34 of the second reference given at the end of the dissertation.