PREFACE

One of the important directions of research in the theory of discrete probability distribution is to develop/obtain large class/family of probability distributions and investigate their various properties, problem of estimation, data fitting, etc. This thesis deals with the study of various distributions of order $k$, their distributional properties etc. to some new class of discrete probability distributions. The thesis has been organized into five chapters, which have been described below.

In the first chapter, an introduction of the work is illustrated. Chapter two deals with the study of a class of quasi binomial distributions of order $k$, where we have obtained its probability function by considering Abel's generalization of the binomial formula and some of their inferential properties. Chapter three describes a family of univariate Abel series distributions of order $k$. Some of their important properties have been studied. The multivariate case of the family of Abel series distribution of order $k$ have been defined and discussed in the chapter four, some properties of these distributions have been studied. Finally, zero-modified distributions of order $k$ of the distributions such as binomial distribution of order $k$, Poisson distribution of order $k$, etc. have been studied in the fifth chapter.

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