

## Preface

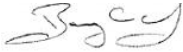
The year 2006 marked the Platinum Jubilee of Indian Statistical Institute (ISI). ISI has played a seminal role in promoting statistics in general worldwide. A leading and significant contribution of ISI has been in the area of Multivariate Statistical Methods as presented by Prof. P.C. Mahalanobis and his team of researchers from the very genesis of ISI. Of them, Prof. Samarendra Nath Roy produced real gems, through his research on difficult and interesting problems, such as  $p$ -statistics and joint distribution of roots of certain Wishart matrices, Union-intersection testing principle, Growth curve analysis, Categorical data analysis. The year 2006 also marked the birth centenary of Professor S.N. Roy. It was thus felt that a celebration of these two simultaneous events be made in the form of a Workshop and a Conference on Multivariate Statistical Methods, focusing on its recently emerging areas of theory and applications. The International Conference was held during December 28-29, 2006, at Kolkata. The conference was organized jointly by Profs. Barry C. Arnold, University of California, Riverside, USA, and Ashis SenGupta, Indian Statistical Institute, Kolkata, India, and was attended by about 150 researchers. The topics, in tune with the theme of the conference, covered a wide spectrum - a snapshot includes Distribution Theory, Stochastic Eigen Analysis, Multiple Testing Procedures, Longitudinal Data Analysis, Large  $p$  - Small  $n$ , Robust Inference, Directional Data Analysis, Bayesian Inference, Bioinformatics, Categorical Data and Clinical Trials, Ranking and Selection, Spatio-Temporal Data Analysis, Econometrics, Statistical Process Control.

This volume is number 4 in the series formed from the events celebrating the Platinum Jubilee of ISI which is being published by World Scientific. It presents a collection of 27 invited papers by international luminaries in the said spirit, which emanated from the Conference, and were peer-reviewed and edited. The chapters reflect advances in both theory and applications of multivariate statistical methods. The first five chapters deal with the analysis of large dimensional data. The first chapter appeals to the Union-Intersection principle developed by Prof. S.N. Roy, and is thus a fitting tribute to him also. The challenging area of Large  $p$  - Small  $n$ , which is currently receiving great attention, is dealt with in Chapters 1

and 2. These are followed by the chapter on Clustering methods and two chapters on Bioinformatics. Chapters 6 and 7 deal with models and inference for Directional Data. Chapter 8 presents some elegant results on Characterization using regression. Chapters 9-11, present reviews and recent results related to multivariate Distribution Theory. Chapters 12-14, consider Estimation, while Chapters 15-17 deal with Testing of Hypotheses problems, illustrated by various examples from applied sciences. Bayesian Methods are having a great impact on analysis of multivariate data and this fact is enhanced through Chapters 18-21, which reflect on both theory and applications. The last five chapters deal mainly with multivariate statistical methods in several real-life applications. Chapters 22-24 consider the area of Reliability Analysis, Chapters 25 and 26 deal with applications of multivariate techniques for analysis of some special types of time series data which are of recently emerging nature and interest. Finally, Chapter 27 enhances multivariate methods in Sample Surveys.

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We present this volume, in the series celebrating the Platinum Jubilee of ISI, as a special tribute to mark the birth centenary of Prof. S.N. Roy, who has greatly enriched the research and teaching programs of ISI. It is hoped that this volume will serve as a useful and timely resource monograph to the researchers and practitioners for advances in the area of Multivariate Statistical Methods.



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