SYNOPSIS

This dissertation traces the development and designing of generalized two level and three level continuous sampling plans with the analysis of consumer protection in the developed plans. It is also concerned with the introduction of multifaceted continuous lot by lot acceptance sampling plan which combines the features of continuous sampling plan and lot by lot inspection.

The basic definitions of terms related to sampling plans, quality indices, mathematical concepts and methods of evaluation of plans are presented under the title Basic Concepts.

The pertinent literature for the preparation of this dissertation is given in the Review of Literature.

In Chapter I the designing and estimation of consumer protection of generalized tightened two level continuous sampling plan having general clearance numbers and general sampling rates of inspection are presented. The operating procedure, the derivation of performance measures, designing of the plan with the quality indices (AQL, AOQL) and (LQL, AOQL) and the selection of plans are given. Examples to illustrate the application of the plans are also given. Consumer protection is estimated for the specified LQL and f.

Chapter II provides the designing and analysis of consumer protection of generalized tightened three level continuous sampling plan having general clearance numbers and general sampling rates of inspection. The operating procedure of the plan and the derivation of performance measures are provided. Design of the plans based on the quality indices (AQL, AOQL) and (LQL, AOQL) is indicated. Selection of plans and examples are also presented. Consumer protection is also analyzed.

The operating procedure, the derivation of performance measures using the Markov-chain approach due to Roberts(1965), designing of the sampling plan indexed by (f, AQL) and (f, LQL) along with estimation of AOQL and AFI are provided to the combined continuous lot by lot acceptance sampling plan in Chapter III.

In Chapter IV, a new multifaceted continuous lot by lot acceptance sampling plan is proposed to study manufacturing process of high quality. The operating procedure of the newly proposed plan, derivation of performance measures and evaluation of its quality indices corresponding to selected parameters are provided. Illustration of the implementation of the plan is given.

In combined continuous lot by lot acceptance sampling plan and multifaceted continuous lot by lot acceptance sampling plan, single sampling plan is used as the reference plan in Chapters III and IV.

Method of construction of tables is provided in all the Chapters.

Results of the study and the directions for future research are also indicated in Summary and Conclusion.

A Bibliography for the referenced material is added at the end.