Abstract

Quality control in statistics is an important part of the modern manufacturing. To control and improve the performance of the process control charts are used. Most of work of the monitoring of process has done in the frequentist statistics. However, much of the work related to process monitoring has been done using frequentist approaches, while the methodology of Bayesian has applied advantage in monitoring of the process so that Bayesian methodology can be easily used with small dataset of phase-I. In this study, different loss functions for the designing of the Bayesian variance control charts by using different prior distributions are considered and it is observed that the performance of the variance control charts under the Bayesian setup are more efficient as compared to the variance chart under the classical setup. Thus, to get desired performance under the different loss functions, design of the Bayesian variance control charts is proposed. The values of ARL of the classical variance control charts are also calculated to make the comparison between classical variance and proposed Bayesian control charts under different prior distribution by using different loss functions. ARL values are calculated by using monte carlo simulation for the better results with the shifted means. Results of analysis are presented in the graphical and tabulated format. For the purpose of simulation, the statistical software R is used.