ABSTRACT

Acceptance sampling plans are used for the purpose of sentencing a lot, the lot is accepted or rejected on the basis of information contained from the sample. Basic purpose of sampling plan is to reduce the cost, time and effort involved in the lot sentencing process. Researchers are focusing on developing such sampling plans that will reduce the cost involved. Here two types of sampling plans are proposed. First plan is for skip lot sampling type V by using the process capability index (C_{pk}) where the quality characteristic is of variable type. The quality characteristic follows the normal distribution. A random sample is selected for which process capability index (C_{pk}) is computed, based upon C_{pk} the lot is accepted or rejected. Based upon good quality history of a firm skipping inspection is adopted, after a predefined number of good lot's acceptance only a fraction f of a lot is inspected. During reduced inspection the clearance number is also reduced to x. The parameters of proposed plan are estimated by using the two point approach on operating characteristic (OC) curve. Parameters are estimated by minimizing the average sample number (ASN) by satisfying the consumer's risk and producer's risk simultaneously. The plan optimum parameters are estimated for both symmetric and asymmetric cases. Comparison of optimum parameters is made between the reference plan and the proposed plan for both the cases.

The second plan is of attribute type that is applied in the situation where the quality characteristics (CTQ) are destructive and expensive. This plan is applied where the supply of purchased material is continuous or the inter-departmental inspection of material is performed. In this plan the resubmitted plan is implemented for the Chain sampling plan ChSP-4 (c_1, c_2). The optimum parameters of ChSP-4 (c_1, c_2) are estimated by the two point approach on operating characteristic (OC) curve, So that the two risk associated with the sampling process are satisfied simultaneously. The optimum parameters of the proposed plan for resubmitted sampling for ChSP-4 (c_1, c_2) by using the two point approach for operating characteristic (OC) curve are estimated, So that both risks are satisfied simultaneously. The proposed resubmitted sampling plan for ChSP-4 (c_1, c_2) and the Vidya (2008) ChSP-4 (c_1, c_2) are compared in term of cost, time and efficiency. The proposed plan is found more efficient as the sample sizes for different