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PERFORMANCE OF CONTROL CHARTS BASED ON THE TRANSMUTED MUKHERJEE-ISLAM DISTRIBUTION

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Abstract: Control charts are designed by assuming that the quantitative characteristics of interest follow a normal distribution, which is not always the case in practice. The variable of interest may follow some non-normal distribution such as an exponential distribution or a gamma distribution or any other. The use of control charts designed for a normal distribution may not be workable in this situation and may cause an increase in the proportion of non-conforming products.

In this paper, the techniques of Transmuted distributions are used to the Mukherjee-Islam distribution to the applications of statistical process control to check the performances of the production process.

The main objective of this paper is to introduce a control chart using Transmuted Mukherjee-Islam distribution in order to study the production system and monitor the same.

Keywords and Phrases: Control Charts, Transmuted Distributions, Mukherjee-Islam distribution.

2010 Mathematics Subject Classification: 62P30.

1. Introduction

The quality of the product depends on the variation of the production process. This variation in the process may be due to some controllable and uncontrollable factors. Control charts are important tools to ensure high quality of the products.