ABSTRACT

In this thesis the distributional properties of generalized order statistics given by Kamps (1995) has been obtained for the Inverse Rayleigh Distribution.

In the start a comprehensive review of the ordered random variables has been given, that starts from the simple order statistics and navigate through the record and generalized order statistics. Use of generalized order statistics, in real life, has been discussed in detail.

In the second chapter a brief review of the literature has been given with a focus on the generalized order statistics.

In the third chapter of the thesis, the distribution of generalized order statistics for Inverse Rayleigh Distribution has been obtained for $m=-1$ and $m\neq -1$. Moments of the GOS for the Inverse Rayleigh Distribution has been obtained for both $m=-1$ and $m=-1$. The Mean and Variance of the GOS for Inverse Rayleigh Distribution has been developed for both $m=-1$ and $m=-1$. The Recurrence relations of the Moments of Generalized Order Statistics (GOS) for Inverse Rayleigh distribution does not exist, as the result of the integral is divergent. So therefore, no working of the Recurrence relations of the moments has been shown in the research work.

Fourth chapter of the thesis dealt with the numeric solution for the Mean and Variance of GOS for Inverse Rayleigh Distribution for both $m=-1$ and $m=-1$. Separate tables has been made for the Mean and Variance of GOS based on Inverse Rayleigh Distribution for the two possible values of m. The effect of the parameters on the values of Mean and Variance has been observed and interpreted accordingly.