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# A QUEUEING SYSTEM WITH CATASTROPHE, STATE DEPENDENT INPUT PARAMETER AND ENVIRONMENTAL CHANGE

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## *ABSTRACT*

*In this paper, a finite capacity queueing system with state dependent input parameter operating in different environments with catastrophes is studied. The input parameter is a function of n, the number of customers present in the system. The input rate increases (decreases) according as n, the number of units in the system, is less (greater) than N, a pre- assigned number. We undertake the transient analysis of a limited capacity queueing system with two environmental states in the presence of catastrophes. Transient state solution is obtained by using the technique of probability generating function. The steady state results of the model are obtained by using the property of Laplace transform. Finally, some particular cases of the queuing model are also derived and discussed.*

***KEYWORDS:*** *Transient Analysis, Catastrophes, Environment, Input Parameter, Probability Generating Function, Laplace Transforms*

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## *Article History*

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