Abstract

In this paper, a multi phase M/G/1 queueing system with Bernoulli feedback where the server takes multiple vacation is considered. All the poisson arrivals with mean arrival rate will demand any of the multi essential services. The service times of the first essential service are assumed to follow a general distribution Bi(\(v\)). After the completion of any of the \(n\) services, if the customer is dissatisfied he can join the tail of the queue for receiving another regular service with probability \(p\). Otherwise the customer may depart from the system with the probability \(q=1-p\). If there is no customer in the queue, then the server can go for vacation and vacation periods are exponentially distributed with mean vacation time \(1/\mu\). On returning from vacation, if the server again founds no customer waiting in the queue, then it again goes for vacation. The server continues to go for vacation until he finds at least one customer in the system. We find the time dependent probability generating function in terms of Laplace transforms and derive explicitly the corresponding steady state results.
MULTI Phase M/G/1 Queue with Bernoulli Feedback and Multiple Server Vacation


**Index Terms**

Computer Science  
Applied Sciences

**Keywords**

steady state solution  
transient solution  
Bernoulli feedback queue  
multiple vacation