(ii) Show that the difference of two independent Poisson processes is not a Poisson process. (6)

14. (a) (i) Customers arrive at a one window drive-in bank according to Poisson distribution with mean 10 per hour. Service time per customer is exponential with mean 5 minutes. The space is front of window, including that for the serviced car can accommodate a maximum of three cars. Others cars can wait outside this space.

(1) What is the probability that an arriving customer can drive directly to the space in front of the window?

(2) What is the probability that an arriving customer will have to wait outside the indicated space?

(3) How long is an arriving customer expected to wait before being served? (10)

(ii) Show that for the $(M/M/1):(FCFS/\infty/\infty)$, the distribution of waiting time in the system is $w(t)=(\mu-\lambda)e^{-(\mu-\lambda)t}, t>0$. (6)

Or

(b) Find the steady state solution for the multiserver $M/M/C$ model and hence find $L9, W9, Ws$ and Ls by using Little's formula.

15. (a) Derive the expected steady state system size for the single server queues with Poisson input and General service. (16)

Or

(b) Write short notes on :

(i) Series Queues. (8)

(ii) Open and Closed Queue Networks. (8)