Quiz II

Introduction to Simulation & Modeling

Max Marks: 10 **Time: 50 min**

1. Consider an M/M/1 infinite buffer single server queueing system with arrival rate λ and service rate μ. Let $\rho=0.2$. There is approximately a 96% probability that there are m or less customers in the queueing system. **Find m.** [2.5 Marks]
2. Consider a finite buffer single server queueing system with arrival and service rates such that the equilibrium probabilities of states are

N	P_n
0	0.415
1	0.277
2	0.185
3	0.123
>=4	0

Using the value in the table, calculate numerical values for mean throughput, mean number of customer in the queueing system and mean delay. Let $\mu=10.0$. [2.5 Marks]

3. *Derive the expression for the blocking probability of M/M/m/N system.* [5 Marks]