**SC531 QUIZ #03** Time allowed: 20 minutes. Maximum marks:12.

Note: 1. Use the values of M and N which you have already calculated. 2. Values of the probability distribution and probability density function required for Q-3 & 4 are provided.

Q-1. A discrete random variable X takes on the three values 0, M and 2M with equal probability. Find the variance of X.



Neglect the smaller values beyond those listed here.

**🡪 2M2/3**Q-2. A biased coin has probability 3/4 of turning up TAIL. The coin is tossed M+2 times. Find the probability of observing M successive TAILS, followed by 2 successive HEADS.

**🡪 0.75Mx0.252**Q-3. At a bank, the number of customer arrivals per minute follows Poisson distribution, with average rate of five per minute. Find the probability that more than M+N-3 customers arrive in a given minute.

**🡪 Summation in pdf from M+N-3 till the end**Q-4. Y is a continuous random variable following normal distribution N(0,2). Find the probability that M/5 < Y < (N+2)/5.

**🡪 Requires (approximate) numerical integration, discussed in class. Note that the standard deviation of Y is specified as 2.**

