**SC531 PRACTICE QUESTIONS – SET 1**

**[USE EXCEL WHERE NECESSARY.]**

Q-1 You are given 5 bowls containing 10 balls each, some white and some black. The number of white balls in the 5 bowls are, respectively: 4, 1, 1, 9 and 5. A bowl is selected at random and then a single ball is drawn from that bowl at random. It is found that the ball drawn is **black**. Find the probability that bowl #2 or bowl #3 was selected initially. [Ans: 0.6]

Q-2 A coin is given to you which may be biased. In other words, for this coin, P(head) may not equal 0.5. This coin is tossed 30 times, and it is seen that head shows up 18 times. What is the probability of the coin showing head on the next toss, that is, toss number 31? [Ans: 19/32]

Q-3. A fair coin is tossed 10 times. Find the probability that it turns up heads exactly 4 times. [10C4/1024]

X = 0 X = 20 X axis 🡪

Q-4. Given the probability density function shown in the diagram, find Prob(4<=X<=8).

[Ans: 0.12]

Q-5. A discrete random variable X takes on the five values 1, 2, 3, 4 and 5 with equal probability. Find the variance of X. [Ans: 2]

Q-6. A biased coin has probability 3/4 of turning up tail. The coin is tossed 12 times. Find the probability of observing 8 successive tails, followed by 4 successive heads. [Ans: (3/4)8x(1/4)4]

Q-7. At a bank, the number of customer arrivals per minute follows Poisson distribution, with average rate of five per minute. Find the probability that 10 customers arrive in a given minute. [Ans: e-5x510/10! Better option: Use Excel function]

Q-8. At a bank, the number of customer arrivals per minute follows Poisson distribution, with average rate of five per minute. Find the probability that 10 or more customers arrive in a given minute. [Requires the use of tabulated Poisson distribution, or Excel]

Q-9. Y is a continuous random variable following normal distribution N(1,2). Find the probability that -1 < Y < 5.

[Ans: F(2) - F(-1) where F(x) is standard normal cdf, easily available through Excel]