**PRACTICE TEST-2**

**Q1.** If 3 books are picked at random from a shelf containing 7 mathematics, 3 physics and 2 chemistry books. Calculate the probability that 2 mathematics books are selected.

**Q2.** Police plan to enforce speed limits by using radar traps at location L1, L2, L3 and L4 which will be operated 40%, 30%, 20% & 30% of the time respectively. If a person who is speeding on his way to work has probabilities 0.2, 0.1, 0.5 & 0.2, respectively, of passing through these locations, Compute the probability that he will receive a speeding ticket.

**Q3.** With reference to Q2, Calculate the probability that the person passed through the radar trap located at L2.

**Q4.** If random variable ‘X’ has the probability distribution given by



Derive cumulative distribution function of X.

**Q5.** With reference Q4, compute the probability that the random variable X is less than 0.5.

**Q6.** If the joint probability distribution of X & Y is given by find the value of ‘c’

**Q7.** With reference to Q6, evaluate the marginal distributions of the random variables X & Y.

**Q8.** On average, the author of a text book makes two typing errors per page. Compute the probability that on the next page the author will make 4 or more errors.

**Q9.** Given the normally distribution random variable ‘X’ with mean 30 and standard deviation 6. Calculate the value of ‘x’ that has 80% of the normal curve area to the left and compute P (X≤ 22).

**Q10.** A process yields 10% defective items. If 100 items are randomly selected, calculate the probability that the number of defectives is less than 8 by using the normal approximation to the Binomial distribution.