**B.P. PODDAR INSTITUTE OF MANAGEMENT & TECHNOLOGY**

**Assignment/B.TECH/CSE/IT (NEW)/SEM 2/BS-M201/2022-23**

**MATHEMATICS-IIA**

**1.** Three machine men A,B,C produces a special kind of electronic – toy, with respective probabilities 0.02,0.03 and 0.05 it fails to be established in market. In the factory where they work, A produces 50% of all toys, B 30% and C 20%.What proportion of “non-establishment is caused by A?

**2.** Thespectrum of the random variable X consists of the points 1,2,...,n and P(X=i) is proportional to .Determine the distribution function of X.

**3.** A discrete random variable X has the following probability distribution

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Value of X:x | -2 | -1 | 0 | 1 | 2 | 3 |
| P(x) | 0.1 | k | 0.2 | 2k | 0.3 | 3k |

 (i) find K

(ii)Find the minimum value of k such that P(X>=2)>=0.8

(iii) Determine the distribution function F(x)of X.

**4.** A bank receives on an average 2.5 customers per hour. Find the probability that in a certain hour the bank receives (i) no customer (ii) exactly 4 customers. Assume that the number of customers received in an hour is poisson distributed.[ e-2.5 = 0.0821]?

**5.**A and Btoss a coin alternately and the first to obtain a head wins the toss.If A stars the game ,find the probability of his winning?

**6.**A discrete random variable X has the mean 6 and variance 2.Assuming the distribution is binomial ,find the probability that .

**7.**Afamily has 6 children.Find the probability that (i)3 boys and 3 girls (ii) fewer boys than girls.

**8.**The bivariate(X,Y)is such thatit take the values(i,j) wherei=0,1,2,3;j=1,2,3,4.The joint probabilities

.(i)Find the value ofk(ii)P(

**9.**Show by Chebycheff’s inequality that in 2000 throwswith a coin the probability that the number of heads lies between 900 and 1100 is at least  .

**10.** If 10 unbiased dice are tossed.Find the approximate probability that the sum obtained is between 30 and 40, inclusive.

OUTCOME BASED EDUCATION (OBE)

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| Question No. | Knowledge Domain | CO |
| 1,2,3,4,5,6,7,8.9,10 | Applying | CO1 |