



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

II B.Tech I Sem Supplementary Examination, July-2022

Computer Oriented Statistical Methods

(CSE & IT)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

- 1 a) What is the probability of getting a total of 6 or 8 when a pair of fair dice is tossed? 7M C01 U
b) A box contains 6 red, 4 white and 5 black balls. A person draws five balls from the box, at random. Find the probability that among the balls drawn there is exactly two Black balls. 7M C01 U
- 2 In a bolt factory machines A, B, and C manufacture respectively 25%, 35%, and 40% respectively. Of their output 5, 4, 2 percent are defective bolts. A bolt is drawn at random from the product and is found to be defective. What are the probabilities that it was manufactured by machines A, B, and C? 14M C01 AP
- 3 a) The probability of bad reaction from a certain injection is 0.001, use Poisson distribution to determine the chance that out of 2000 individuals more than two will get a bad reaction. 7M C02 AP
b) The probability that a pen manufactured by a company to be defective is 0.1. If 6 such pens are manufactured use Binomial distribution to find probability of exactly two defective pens. 7M C02 U
- 4 Fit a binomial distribution to the following:

x	0	1	2	3	4	5
frequency	5	16	28	12	10	4

14M C02 U
- 5 a) Explain briefly about the significance of F-Distribution 7M C03 U
b) Derive poisson distribution as a limiting case of Binomial Distribution 7M C03 AP
- 6 Assuming that the average life span of computers produced by a certain company is 2040 hours with standard deviation of 60 hours. Find the expected number of computers whose life span is (a) more than 2150 hours (b) less than 1950 hours. from a lot size of 5000 computers 14M C03 AN
- 7 a) Find the 'maximum likelihood estimate for the parameter λ of a Poisson distribution on the basis of a sample of size n, also find its variance. 7M C04 AN
b) Ten objects are chosen at random from a large population and the weights are found to be in grams: 63, 63, 64, 65, 66, 69, 69, 70, 70, 71. Discuss the suggestion that mean weight is 65g. 7M C04 AP

Prove that the following TPM is Stochastic and Regular

- 8
$$\begin{bmatrix} 0 & 0 & 1 \\ 1/2 & 0 & 1/2 \\ 0 & 1 & 0 \end{bmatrix}$$
 14M C05 AN