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 Section2(f) & 12(B)of the UGC act,1956

MLRS

II B.Tech I Sem Supplementary Examination, February-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 5 or 6 when a pair of fair dice is tossed?	7M	CO1	U
	b)	A box contains 6 red. 4 white and 5 black balls. A person draws six balls from the box at random. Find the probability that among the balls drawn there is exactly two Red balls.	7M	CO1	U
2		A random variable X has the following probability distribution. X : 0 1 2 3 4 5 6 P(X): k 3k 5k 7k 9k 11k 13k Find the value of k, also find $P(X<4)$, $P(X\geq5)$ and $P(3<X\leq6)$.	14M	CO1	AP
3	a)	In a certain factory turning out razor blades, there is a small chance of 0.002 for any blade to be defective. The blades are supplied in packets of 10, use Poisson distribution to calculate the approximate number of packets containing no defective, one defective and two defective blades respectively in a consignment of 10,000 packets	7M	CO2	AP
	b)	Ten coins are thrown simultaneously, find the probability of getting at least seven heads	7M	CO2	AP
4		Fit a Poisson distribution to the following data. <table><tr><td>X</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>f</td><td>419</td><td>352</td><td>154</td><td>56</td><td>19</td></tr></table>	14M	CO2	AP
5	a)	Explain briefly about the significance of t-Distribution?	7M	CO3	U
	b)	Derive Normal distribution as a limiting case of Binomial Distribution	7M	CO3	AP
6		In a normal distribution 31% of the items are under 45 and 8% are over 64. Find the mean and standard deviation of the distribution	14M	CO3	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	CO4	AN

	b)	The heights of 10 males of a given locality are found to be 70,67,62,68,61,68,70.64,64,66 inches. Is it reasonable to believe that the average height is greater than 64 inches?	7M	CO4	AP
8		The purchase patterns of two brands of toothpaste can be expressed as a Markov process with the following transition probabilities Formula X Formula Y Formula X 0.90 0,10 Formula Y 0,05 0.95 Which brand appears to have most loyal customers	14M	CO5	AN

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