

## JAWAHARLAL NEHRUTECHNOLOGICAL UNIVERSITY-GURUJADA VIZAINAGARAM

## II B. Tech II Semester Supplementary Examinations November-2025

## PROBABILITY &amp; STATISTICS

## (CSE )

Time: 3 hours

Max. Marks: 70

The Question paper consists of Part A &amp; Part B.

Part A is compulsory, Answer all questions. Part B Answers any one question from each unit.

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- 1 PART-A (20Marks)
- What is secondary data give an example [2]
  - Find the coefficient of range of { 45,89,75,15} [2]
  - Four cards are drawn at random from a pack of 52 cards find the probability that there is one ace and one jack [2]
  - If  $\text{Var}(X) = 2$  then find  $\text{Var}(2X+4)$  [2]
  - Find the finite population correction factor for  $N = 100$ ,  $n = 5$  [2]
  - What is the effect of standard error if a sample size is increased from 400 to 900 [2]
  - Write the test statistic for compute the difference of two proportions [2]
  - What is the standard error for single mean with  $n = 49$ , S.D is 14. [2]
  - Find the Rank correlation for (2,3),(1,4), (3,2) [2]
  - What is negative correlation give an example [2]

## PART-B

(50Marks)

## Question from Unit - I

- 2 a) Find the Mean, median and mode of the following data [10]
- |           |      |       |       |       |       |       |       |
|-----------|------|-------|-------|-------|-------|-------|-------|
| Marks     | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| frequency | 6    | 5     | 8     | 15    | 7     | 6     | 3     |

(OR)

- 3 a) Find the Kurtosis for the following data [10]
- |           |         |         |         |         |         |         |         |
|-----------|---------|---------|---------|---------|---------|---------|---------|
| Marks     | 110-115 | 115-120 | 120-125 | 125-130 | 130-135 | 135-140 | 140-145 |
| frequency | 5       | 15      | 20      | 35      | 10      | 10      | 5       |

## Question from Unit - II

- 4 a) An urn contains 5 white and 5 black balls, 4 balls are drawn from this urn and put into another urn, From the second urn a ball is drawn and is found to be white. what is the probability of drawing a white ball again at the next drawn (The first white ball drawn is not replaced) [10]

(OR)

- 5 a) A fair die is tossed. Let the random variable X denote the twice the number appearing on the die. The find (i) Distribution function (ii) Mean (iii) Variance (iv)  $P(2 < X < 6)$  [10]

## Question from Unit - III

- 6 a) Samples of size 2 are taken from the population {3,7,9,11,15} without replacement. Find [10]
- The mean of the population
  - The standard deviation of the population
  - Mean of the sampling distribution of means
  - The standard deviation of the sampling distribution of means

(OR)

- 7 a) Construct 95% , 99% confidence limits for the data of sample size 100, with sample proportion 0.5. [10]

Question from **Unit - IV**

- 8 a) Test whether two samples are drawn from same normal populations for the following data at 5% level [10]

Sample I	42	39	48	60	41		
Sample II	38	42	56	64	68	69	62

(OR)

- 9 a) From the following data, find whether there is any significant liking in the habit of taking soft drinks among the categories of employees at 5% level [10]

Soft drinks	Clerks	Teachers	officers
Pepsi	10	25	65
Thump up	15	30	65
Fanta	50	60	30

Question from **Unit - V**

- 10 a) Fit the curve  $y = ab^x$  for the following data [10]

x	0	1	2	3	4	5	6	7
y	10	21	35	59	92	200	400	610

(OR)

- 11 a) Determine two regression lines x on y and y on x for the following data [10]

x	10	12	13	16	17	20	25
Y	10	22	24	27	29	33	37