

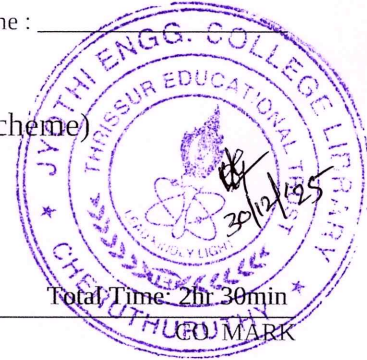
Reg No.: \_\_\_\_\_

Name : \_\_\_\_\_



Jyothi Engineering College(Autonomous)  
M.Tech Degree S1 (R) Examination, December 2025 (2025 Scheme)

**25PTET101- PROBABILITY AND STATISTICS**



Total Mark: 60

Total Time: 2hr 30min  
100 MARK

(Statistical tables are allowed)

**PART A**

Answer All Questions

1. If the mean and variance of binomial distribution are 4 and 2 respectively. Find the probability of exactly 2 successes. CO1 (5)
2. Define Unbiasedness and consistency of an estimator. CO2 (5)
3. What are the principles of experimentation? CO3 (5)
4. Calculate the correlation coefficient for the following data. CO4 (5)

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

5. Fit trend value for the following data by the method of semi average. CO5 (5)  
 Years:                      1991 1992 1993 1994 1995 1996  
 Sale (thousand unit):    20    24    22    30    28    30

**PART B**

Answer Any Five Question(s)

6. Calculate the mean and variance of a binomial distribution. CO1 (7)
7. The mean life of a sample of 10 electric bulbs were observed to be 1309 hours with a standard deviation of 420 hours. A second sample of 16 bulbs of a different batch shows a mean life of 1205 hours with standard deviation of 390 hours. Test whether there is a significant difference between means. CO2 (7)
8. Four coins are tossed 80 times. The distribution of number of heads is given below: CO2 (7)  
 Number of heads: 0    1    2    3    4  
 Frequency:            4    20    32    18    6
9. The following table gives the yield of 3 variety. Perform the ANOVA table. CO3 (7)

variety ↓ yield →	1	2	3	4	5
1	30	27	42	-	-
2	51	47	37	48	42
3	44	35	41	36	-

10. Three varieties of crops A, B, C are tested in a randomized block design with four replication. The yields are given below.

Replication↓ Varieties→	A	B	C
1	6	7	8
2	4	6	5
3	8	6	10
4	6	9	9

CO3 (7)

Test whether there is a difference between varieties and test also whether there is difference between yields.

11. For 10 observations each on price (x) and supply (y) the following data are obtained.

$$\sum x = 130, \sum y = 220, \sum xy = 3467, \sum x^2 = 2228, \sum y^2 = 5506$$

CO4 (7)

Obtain the regression lines of y on x and x on y.

12. Given the weekly demand data What are the exponential smoothing forecasts for the period 2-10 using  $\alpha=0.1$

Week:	1	2	3	4	5	6	7	8	9	10
Demand:	820	775	680	665	750	802	798	689	775	—

CO5 (7)

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