

Hall Ticket Number :

R-17

Code: 7GC42

II B.Tech. II Semester Supplementary Examinations November 2023

Probability and Statistics

(Common to CE, ME & CSE)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks CO BL

UNIT-I

1. Find the coefficient of correlation between industrial production and export using the following data and comment on the result.

Production (in crores tons):	55	56	58	59	60	60	62
Exports (in crores tons) :	35	38	38	39	44	43	45

14M CO1 L3

OR

2. Find the Spearman's rank correlation coefficient to the data:

X:	68	64	75	50	64	80	75	40	55	64
Y:	62	58	68	45	81	60	68	48	50	70

14M CO1 L3

UNIT-II

3. State and prove Addition theorem on probability for three events

14M CO2 L4

OR

4. A random variable X has the following probability function

X	0	1	2	3	4	5	6	7
P(X)	0	K	2K	2K	3K	K ²	2K ²	7K ² +K

Find the value of K , (ii) Evaluate $p(0 < x < 5)$, (iii) Evaluate $p(x < 5)$

14M CO2 L3

UNIT-III

5. If a random variable has a Poisson distribution such that $P(1) = P(2)$ find (i) Mean of the distribution, (ii) $P(4)$, (iii) $P(x = 1)$, (iv) $P(1 < x < 4)$

14M CO3 L2

OR

6. A hospital switch board receives an averages of 4 emergency calls in a 10 minutes interval. What is the probability that (i) there are at most 2 emergency calls in a 10 minute interval (ii) there are exactly 3 emergency calls in a 10 minute interval?

14M CO3 L3

UNIT-IV

7. A random sample of size 100 has a standard deviation of 5. What can you say about the maximum error with 95% confidence?

14M CO4 L4

OR

8. The mean life of a sample of 10 electric bulbs was found to be 1456 hours with S.D of 423 hours. A second sample of 17 bulbs chosen from a different batch showed a mean life 1280 hours with S.D. of 398 hours. Is there a significant difference between the means of two batches?

14M CO4 L4

Important Note: 1. On completing your answers. Compulsorily draw diagonal cross line on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 32+8=40, will be treated as malpractice.

UNIT-V

9. In a test given two groups of students, the marks obtained are as follows:

First Group :	18	20	36	50	49	36	34	49	41
Second Group:	29	28	26	35	30	44	46	-	-

Estimate the significance of the difference between the mean marks secured by the students of the above two groups.

14M CO4 L4

OR

10. 1000 students at college level were graded according to their IQ and economic condition of their home. Chose an appropriate test to find the any association between condition at home and I.Q.

economic condition	high	low	Total
Rich	460	140	600
Poor	240	160	400
Total	700	300	1000

14M CO4 L5
