

25U291

(Pages: 2)

Name :

Reg. No :

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2026

(FYUGP)

(Regular/Supplementary/Improvement)

CC24USTA2MN103 - REGRESSION AND PROBABILITY THEORY

(Statistics - Minor Course)

(2024 Admission onwards)

Time: 2.0 Hours

Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer *all* questions. Each question carries 3 marks.

1. Define range. Write merits of range. [Level:2] [CO1]
2. Calculate range from the following data. [Level:3] [CO1]
5, 8, 10, 2, 18, 25, 3
3. Distinguish between correlation and regression. [Level:2] [CO2]
4. Determine the sample space of rolling two dice. [Level:3] [CO3]
5. A die is thrown. Calculate the probability of getting (i) an even number (ii) a "4" [Level:3] [CO3]
(iii) less than 3.
6. Explain mutually likely events. [Level:2] [CO3]
7. Explain axiomatic definition of probability. [Level:2] [CO3]
8. A die rolled two times. Calculate the probability of getting three on the first roll [Level:3] [CO4]
and even number on the second roll.
9. Explain multiplication law of probability. [Level:2] [CO4]
10. Explain pairwise independence of events. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer *all* questions. Each question carries 6 marks.

11. Calculate standard deviation of 129, 131, 125, 130, 126, 122. [Level:3] [CO1]

12. Calculate quartile deviation and coefficient of quartile deviation for the data 15, 20, 35, 25, 40, 26, 18, 30, 40. [Level:3] [CO1]
13. Discuss different types of correlation. [Level:2] [CO2]
14. Describe perfect negative and perfect positive correlation using scatter diagram. [Level:2] [CO2]
15. Calculate the marks in Mathematics corresponding to 70 marks in English from the following data. [Level:3] [CO2]

	Average	Standard deviation
Marks in Maths	48.4	8.4
Marks in English	85.6	10.5

Coefficient of correlation is 0.62.

16. Discuss addition theorem. A card is drawn at random from an ordinary pack of 52 cards. Compute the probability that the card drawn is either spade or diamond. [Level:3] [CO3]
17. A factory has two machines producing widgets: Machine A produces 70% of the widgets, and 2% of them are defective. Machine B produces 30% of the widgets, and 3% of them are defective. If a widget is found to be defective, what is the probability that it was produced by Machine B? [Level:3] [CO4]
18. Explain conditional probability. Let A and B are two events with $P(A) = 0.56$, $P(B) = 0.60$ and $P(A \text{ and } B) = 0.30$. Compute $P(A/B)$ and $P(B/A)$. [Level:3] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any **one** question. The question carries 10 marks.

19. (i) Explain coefficient of variation. [Level:3] [CO1]
- (ii) The runs scored by two batsmen in 5 innings are given. Compute CV and find who is the more consistent batsmen?

A	20	50	55	30	75
B	15	60	50	25	95

20. Compute the coefficient of correlation between X and Y. [Level:3] [CO2]

X	1	3	4	6	8	9	11	14
Y	1	2	4	4	5	7	8	9

(1 × 10 = 10 Marks)
