

Roll No: _____

Date: ___/___/___

St. Claret College

Autonomous, Bengaluru

UG END SEMESTER EXAMINATION-NOVEMBER 2025

BCA III SEMESTER

CA 3325: PROBABILITY AND STATISTICS

10



TIME: 3 hours.

MAX. MARKS: 80

This paper contains TWO printed pages and FOUR parts

Instructions:

1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

PART-A

Answer ALL questions. Each answer carries ONE mark.

[10 x 1 = 10]

1. A diagram that represents data using pictures is called as
a) Cartogram b) Pictogram c) Bar Diagram d) Pie Diagram
2. A frequency distribution that organizes data into intervals is called
a) Grouped Frequency Distribution b) Ungrouped Frequency Distribution
c) Relative Frequency Distribution d) Cumulative Frequency Distribution
3. Which quartile is equivalent to the median?
a) Q4 b) Q3 c) Q2 d) Q1
4. If the correlation coefficient is zero, it implies
a) A perfect positive relationship b) A perfect negative relationship
c) No linear relationship d) A strong non-linear relationship
5. The simple linear regression equation is represented as
a) $Y = a + bX$ b) $X = a + bX$ c) $Y = b_1X_1 + b_2X_2 + a$ d) $Y = aX^2 + bX + c$
6. A set of events that covers all possible outcomes of an experiment is called
a) Independent events b) Mutually exclusive events
c) Exhaustive events d) Complementary events
7. The parameter for the Poisson Distribution is
a) n and p b) μ and σ c) λ (lambda) d) p
8. In a Normal Distribution, the mean, median, and mode are
a) All different b) All equal
c) Only the mean and median are equal d) Only the median and mode are equal
9. The symbol μ represents a
a) Sample Statistic b) Population Parameter c) Sample Mean d) Standard Error
10. The probability of failing to reject a false null hypothesis is called as
a) Type I Error b) Type II Error (β) c) Power of the test ($1-\beta$) d) p-value

PART-B

Answer any **FIVE** questions. Each answer carries **TWO** marks.

[5 x 2= 10]

- 11. What are descriptive statistics?
- 12. Name any two types of one-dimensional diagrams used for data representation.
- 13. Define Mode. Find the mode of the dataset {5, 7, 2, 5, 9, 2, 5}?
- 14. What is logistic regression?
- 15. Define sample space.
- 16. What is the Binomial probability distribution?
- 17. What is Type I error? Give an example.

PART-C

Answer any **FOUR** questions. Each answer carries **FIVE** marks.

[4 x 5 = 20]

- 18. Describe the following diagrams:
 - i) Bar Diagram
 - ii) Pie Diagram
- 19. Calculate Spearman's Rank Correlation Coefficient from the ranks given below:

X	6	2	5	1	4	7	3	8
Y	4	1	3	2	8	6	7	5

- 20. Explain scatter diagram.
- 21. Find the probability of drawing a king, a queen and a jack in this order from a pack of cards in three consecutive draws. The cards drawn are not being replaced.
- 22. State and prove bayes theorem.
- 23. Explain statistical inference and its types.

PART-D

Answer any **FOUR** questions. Each answer carries **TEN** marks.

[4 x 10 = 40]

- 24. a) Explain measures of central tendency with a suitable example.
 - b) What is data? Explain its types. [5+5]
- 25. a) Calculate the Arithmetic Mean, Median, and Mode for the following data:
34, 24, 56, 52, 21, 44, 64, 34, 42, 46.
 - b) Explain skewness and kurtosis in detail. [5+5]
- 26. Calculate the two regression equations of X on Y and Y on X from the data given below by taking deviations from the actual means of X and Y.

Price	10	12	13	12	16	15
Amount demanded	40	38	43	45	37	43

- Estimate the likely demand when the price is Rs. 20.
- 27. What is an Event? Explain the types of events with examples.
- 28. a) Three coins are tossed, let X is the number of heads. Find the mean and variance.
 - b) Explain the types of hypothesis testing. [5+5]
- 29. Explain sampling methods with examples.