



ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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END SEMESTER EXAMINATION – NOV/DEC 2025

COMPUTER SCIENCE - III SEMESTER BCA

25BCA34: PROBABILITY AND STATISTICS

Time: 3 Hours

Max. Marks: 80

Instruction: Answer should be written completely in English.

SECTION – A

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

(5X2=10)

1. Define frequency distribution.
2. What is meant by dispersion?
3. Define Karl Pearson's coefficient of correlation.
4. What is regression?
5. State the parameter of a Poisson distribution and its mean and variance.
6. What is the probability that a number selected from the first 25 natural numbers is a prime number?
7. Explain the meaning and purpose of a t-test.

SECTION – B

Answer any **SIX** questions. Each question carries **FIVE** marks.

(6X5=30)

8. Locate the median from the following:

Size of the shoes	5	5.5	6	6.5	7	7.5	8
Frequency	10	16	28	15	30	40	34

9. Following are the marks out of 100, obtained by 50 students in Statistics. Construct a frequency distribution table taking class intervals of 10 marks and the first-class interval as 0-10.

55, 65, 60, 58, 52, 56, 45, 42, 35, 40,
47, 51, 39, 61, 33, 59, 49, 41, 15, 55,
42, 63, 82, 65, 45, 63, 54, 52, 48, 46,
57, 53, 55, 42, 45, 39, 64, 55, 26, 18,
70, 45, 33, 64, 50, 25, 65, 75, 30, 20.

10. From the following data calculate co-efficient of rank correlation between X and Y.

X	36	56	20	65	42	33	44	50	15	60
Y	50	35	70	25	58	75	60	45	80	38



11. In a competition, two judges accorded the following ranks to the 10 participants. Calculate the coefficient of rank correlation.

Judge X	1	2	3	4	5	6	7	8	9	10
Judge Y	6	2	9	7	1	4	8	3	10	5

12. Draw a scatter diagram for the following data and state the type of correlation between the given two variables X and Y.

X	10	20	30	40	50	60
Y	80	160	240	320	400	480

13. Two dice are thrown together. What is the probability of getting a total 8 or a product 12?
 14. A number is selected at random from 40 to 80. Find the probability that it is divisible by 6 or 9.
 15. Consider 4 students with marks as follows:

A	B	C	D
40	50	60	70

Calculate the population mean and the mean of the sampling distribution of means.

SECTION – C

Answer any **FIVE** questions. Each question carries **EIGHT** marks.

(5X8=40)

16. Calculate the range and semi-interquartile range of the wages. Also calculate the quartile coefficient of dispersion.

Wages (Rs.)	30-32	32-34	34-36	36-38	38-40	40-42	42-44
Laborers	12	18	16	14	12	8	6

17. Find the mean, median and mode from the following data:

Class interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	14	23	35	20	8	5

18. From the data given below, compute Karl Pearson's coefficient of correlation.

Supply (Quintals)	30	29	29	25	24	24	24	21	18	15
Price (Rs.)	11	12	13	14	15	16	17	18	19	20

19. Calculate the regression equations for the following data.

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



20. A company launches an advertising campaign of its new product on TV, radio and in print media in an area where 30% watch TV, 50% listen to the radio and the rest rely on newspapers for all information. It is estimated that a person who sees the advertisement on TV will buy the product with probability 0.6. A person who has heard it on radio is expected to buy the product with probability 0.3 and seeing advertisement in print will convince the person to buy the product with probability 0.1. A consumer, chosen at random, is found to have purchased the product. What is the probability she heard about the product on radio?
21. One factory P produces 2000 articles, 20 of them being defective, second factory Q produces 5000 articles, 40 of them being defective and third factory R produces 3000 articles, 50 of them being defective. All these articles are put in one stock pile. One of them is chosen and is found to be defective. What is the probability that it is from the factory P?
22. A dice is tossed 120 times with the following results:

No. turned up	1	2	3	4	5	6	Total
Frequency	30	25	18	10	22	25	120

Test the hypothesis that the dice is unbiased. [Hint: For 5 degrees of freedom, at 5% significance level, the table value of chi square is 11.07].

