

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BCA
BRANCH: BCA

SEMESTER : III/ADD
SESSION : MO/2025

SUBJECT: CN209 STATISTICS WITH R

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

- | | | CO | BL |
|---|-----|----|-----|
| Q.1(a) “Statistics is a method of decision-making in the face of uncertainty based on numerical data and calculated risks.” Explain with suitable illustrations. | [5] | 1 | 1 |
| Q.1(b) State the different methods used for diagrammatic representation of statistical data, and draw the histogram and frequency polygon for the following frequency distribution. | [5] | 2 | 3,4 |

Mid-value of the class interval	2.5	7.5	12.5	17.5	22.5	27.5	32.5	37.5
Frequency	7	10	20	13	17	10	14	9

- | | | | |
|--|-----|---|-----|
| Q.2(a) Define arithmetic mean and median, and discuss their merits and demerits as measures of central tendency. | [5] | 3 | 2 |
| Q.2(b) Calculate the Mode, Median, and Arithmetic average from the following data. | [5] | 2 | 4,5 |

Class interval	100-110	110-120	120-130	130-140	140-150	150-160	160-170	170-180
Frequency	4	6	20	32	33	17	8	2

- | | | | |
|---|-----|---|-----|
| Q.3(a) Describe the various methods of measuring variation along with their respective merits and demerits. | [5] | 3 | 2 |
| Q.3(b) Calculate the mean and standard deviation from the following data. | [5] | 4 | 4,5 |

Values	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Frequency	1	4	14	20	22	12	2

- | | | | |
|---|-----|---|-----|
| Q.4(a) Define an independent event. A candidate is selected for an interview with management trainees from three companies. For the first company, there are 12 candidates; for the second, 15 candidates; and for the third, 10 candidates. find the probability that he is selected by at least one of the companies. | [5] | 3 | 3,4 |
| Q.4(b) How many workers have a salary between Rs. 4000 and Rs. 6500? If the arithmetic mean is Rs. 5000, the standard deviation is Rs. 1000, and the number of workers is 15000, if the salary of the worker is assumed to follow the normal law? | [5] | 2 | 3,5 |

- | | | | |
|--|-----|---|-----|
| Q.5(a) Define correlation. Explain various types of correlation with suitable examples. | [5] | 3 | 2 |
| Q.5(b) Calculate Karl Pearson's coefficient of correlation between expenditure on advertising and sales from the data given below. | [5] | 4 | 4,5 |

Advertising expenses (lakh Rs.):	39	65	62	90	82	75	25	98	36	78
Sales (lakh Rs.):	47	53	58	86	62	68	60	91	51	84

:::24/11/2025:::M