



III Semester B.C.A. (Full Stack Development) (AI&ML) (Data Science)
Examination, January/February 2026
(SEP 2024 – 25)
COMPUTER APPLICATION
24BCA32 : Probability and Statistics

Time : 3 Hours

Max. Marks : 80

Instruction : Answer all the Sections.

SECTION – A

Answer **any 8** questions. **Each** question carries **2** marks.

(2×8=16)

1. Mention any four characteristics of Statistics.
2. Define probability of an event.
3. Mention any four limitations of statistics.
4. Compute median for the data 1100, 1200, 1350, 1500, 1550, 1600, 1800, 1850.
5. What is Correlation Coefficient ?
6. Define Linear Regression.
7. State Probability Mass Function.
8. What are the characteristics of Normal Probability Distribution ?
9. What is null hypothesis and alternative hypothesis ?
10. What is the standard error in sampling distribution ?



SECTION – B

Answer **any 4** questions. **Each** question carries **6** marks.

(6×4=24)

11. Mention stages in statistic investigation.
12. Compute the standard deviation from the following data :

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	8	15	16	6

13. Find the line of best fit for the following data of heights and weights of students in a school using the Least Squares Method.
* Height (in centimeters) : [160, 162, 164, 166, 168]
* Weight (in kilograms) : [52, 55, 57, 60, 61]



14. A bag contains 5 Red balls and 3 Green balls. Two balls are drawn one after another without replacement. Find the probability that the second ball drawn is Green, given that the first ball drawn was Red.
15. Compute quartiles by considering the following distribution.

Values	140 – 150	150 – 160	160 – 170	170 – 180	180 – 190	190 – 200
Frequency	17	29	42	72	84	107

Values	200 – 210	210 – 220	220 – 230	230 – 240	240 – 250
Frequency	49	34	31	16	12

16. Explain population and sample in statistics.

SECTION – C

Answer **any 5** questions. **Each** question carries **8** marks.

(8×5=40)

17. Calculate :

- Range
- Mean Deviation from Mean and
- Variance for following data.

The marks obtained by 8 BCA students in a class test are : 10, 12, 15, 18, 20, 22, 25, 30.

18. Calculate Pearson's Coefficient of Correlation from the following data :

X : 10, 12, 13, 16, 17, 20

Y : 9, 11, 13, 15, 16, 19

19. Write a note on Normal Probability Distribution and Binomial Probability Distribution.

20. a) Explain Sampling Distribution of the Sample Mean.

- b) In a large city, the true proportion of voters who support a policy is $p = 0.40$.

A random sample of $n = 200$ voters is taken. Find $P(0.35 < \hat{p} < 0.45)$. **(3+5)**

21. Explain Hypothesis Testing, its importance and types with an example.

22. Discuss methods of sampling.

23. Write a note on Scatter Diagram with example.

