QP CODE

B1034

Enrollment Number: .....

Name: .....

B.SC DEGREE EXAMINATIONS, APRIL 2025

First Semester

B.Sc. Data Science

B24DS02DC – Computational Foundations for Data Science

(2024 July Admissions)

Time: 3 Hours **Max Marks: 70**

Section A

Answer any ten of the following questions in a word or sentence each. Each question carries 1 mark.

1. What is variable in statistics?
2. Define face-to-face surveys in data collection.
3. Give two examples of qualitative data.
4. What are the measures of variability?
5. Give the formula for standard deviation.
6. What are trail and event?
7. What is the probability of getting a head in a single toss of a coin?
8. What is an independent event?
9. Give the formula for Baye's Theorem.
10. Expand PMF in probability distribution.
11. Name two properties of the exponential distribution.
12. What is Null hypothesis?
13. Define t-test.
14. What is Wilcoxon signed rank test?
15. What are the key points in H Test?

(1X10=10)

Section B

Answer any five of the following questions in two or three sentences each. Each question carries 2 marks.

16. What is stratified sampling?
17. Briefly explain levels of measurement in data analysis.
18. Differentiate Descriptive and Inferential Statistics.
19. What are the measures of Central Tendency?

20. What is probability? Briefly explain.
21. What is sample space?
22. A dice is tossed 2 times. Find the probability of getting two or four.
23. What are the properties of Exponential distribution?
24. What is power of a test in hypothesis?
25. Write down disadvantages of non-parametric tests.

(2X5=10)

Section C

Answer any five of the following questions in a paragraph each. Each question carries 4 marks.

26. Define Statistics. Explain its role and applications.
27. Explain various methods of data collection.
28. What are the methods to convert qualitative data to quantitative data?
29. Define probability density function. What are its key properties?
30. What are the rules of probability? Explain with example.
31. What are conditional probability and independent events? Find the probability of drawing an Ace and King from a pack of cards in two consecutive draws, the cards drawn not being replaced?
32. Discuss about Kruskal-Walls test
33. Difference between Parametric and Non parametric tests
34. Write down the procedure for testing of hypothesis.
35. Explain Contingency table.

(4X5=20)

Section D

Answer any two of the following questions in three pages each. Each question carries 15 marks.

36. Explain Range, Interquartile range and boxplot with example.
37. Explain Binomial distribution. Write down its key features, and its properties.
38. What is ANOVA? Explain the steps to perform the ANOVA test. Using the following data, perform a one-way analysis of variance using alpha = 0.05.
    A: [20, 22, 19, 24, 20]

    B: [28, 30, 27, 29, 26]

    C: [19, 18, 20, 23, 21]
39. What is U-Test? Write down application, assumptions, advantages, and limitations of U-Test.

(15X2=30)