

First Semester FYUGP Degree (Reg) Examination (Deficiency Credit) April 2026

KU1DSCSTA124 - BASIC STATISTICS AND NUMERICAL SKILLS

2024 Admission onwards

Time : 2 hours

Maximum Marks : 70

Section A

Answer any 6 questions. Each carry 3 marks.

1. Explain nominal and ordinal measurement scales.
2. Define data. Explain different types of data.
3. Explain quartile deviation. How is it different from range?
4. What is the range of a dataset? Define the coefficient of range.
5. Define coefficient of quartile deviation. Given $Q1 = 12$ and $Q3 = 24$, calculate the coefficient of quartile deviation.

6. Write down the rule for adding two matrices. Find $A + B$ if $A = \begin{pmatrix} 6 & 10 \\ 9 & 2 \end{pmatrix}$

$$B = \begin{pmatrix} 12 & 15 \\ 14 & 21 \end{pmatrix}$$

7. List and briefly explain the different types of matrices.

8. Find the determinant of $A = \begin{pmatrix} 4 & 2 & 3 \\ 0 & 1 & 2 \\ 6 & 3 & 7 \end{pmatrix}$

Section B

Answer any 4 questions. Each carry 6 marks.

9. Define the term "measures of dispersion ". Discuss the importance of quartiles in understanding the spread of a dataset.
10. Define standard deviation of a dataset. Explain the advantages and limitations of using standard deviation as a measure of dispersion.
11. Explain how the coefficient of variation can be used to compare two different datasets. Find the coefficient of variation if the mean is 50 and the standard deviation is 5.

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12. Define a matrix. Find the product of the following matrices

$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \quad B = \begin{pmatrix} 2 & 5 \\ 4 & 7 \end{pmatrix}$$

13. Solve the following system of equations using Cramer's Rule: $2x - 3y = 3$, $4x - y = 11$.

14. Find the determinant of the matrix $A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 7 & 8 & 9 \end{pmatrix}$

Section C

Answer any 2 questions. Each carry 14 marks.

15. Explain partition values. Explain in detail the calculation of deciles and their importance in dividing dataset into equal parts.
16. Compare and contrast the properties, strengths, and weaknesses of the arithmetic mean, median, and mode. Provide examples of when each measure is most appropriate to use.
17. Discuss the differences between simple random sampling, stratified random sampling, and systematic random sampling, providing examples of where each method is most appropriate.