

**First Semester FYUGP Degree (Reg/Sup) Examination**  
**November 2025**  
**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. Define arithmetic mean of a dataset.
2. List any three properties of the arithmetic mean.
3. Define mean deviation from mean and mention its formula.
4. How is the coefficient of variation calculated?
5. Define coefficient of quartile deviation. Given  $Q1 = 12$  and  $Q3 = 24$ , calculate the coefficient of quartile deviation.
6. Define primary data and secondary data.
7. Explain nominal and ordinal measurement scales.
8. What is stratified random sampling?

**Section B**

**Answer any 4 questions. Each carry 6 marks.**

9. Define quartiles of a set of data. Calculate the range and quartile deviation for the following data set: 10, 12, 15, 18, 22, 24.
10. Define standard deviation of a dataset. Explain the advantages and limitations of using standard deviation as a measure of dispersion.
11. Define range and coefficient of range. Calculate the coefficient of range for the following data: 10, 15, 20, 25, 30.
12. Explain the differences between qualitative and quantitative data with examples.
13. Distinguish between probability sampling and non-probability sampling. What are the major disadvantages of non-probability sampling?
14. Explain different probability sampling methods.

### Section C

Answer any 2 questions. Each carry 14 marks.

15. Find the product of the following matrices  $A = \begin{pmatrix} 3 & 12 & 4 \\ 5 & 5 & 8 \\ 1 & 0 & 2 \end{pmatrix}$ ,  $B = \begin{pmatrix} 7 & 3 & 8 \\ 11 & 9 & 5 \\ 6 & 8 & 4 \end{pmatrix}$ .

Verify if matrix multiplication is commutative.

16. State Cramer's Rule for solving a system of linear equations. Solve the following system of linear equations using Cramer's Rule:

$$2x + 3y - z = 1$$

$$4x + y + 2z = 7$$

$$x - 2y + z = 4.$$

17. 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.