QP Code: D133250	**Total Pages: 2**	**Name:**
		Register No.

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(CUFYUGP)

STA1MN101 - DESCRIPTIVE STATISTICS FOR DATA SCIENCE

2024 Admission onwards

Maximum Time :2 Hours	**Maximum Marks :70**

Section A

All Questions can be answered.
Each Question carries 3 marks (Ceiling : 24 Marks)

1	Define qualitative and quantitative variables.
2	Define population and sampling frame.
3	Define primary data. Mention any two of its merits.
4	Differentiate between grouped and ungrouped frequency table.
5	Define histogram.
6	Define (i) central tendency (ii) dispersion
7	Obtain the geometric mean of the observations 2, 8, 32 and 128.
8	Define positively and negatively skewed data.
9	Define sample space. Write the sample space of the random experiment of tossing of three coins.
10	State Bayes' theorem.

Section B

All Questions can be answered.
Each Question carries 6 marks (Ceiling : 36 Marks)

11	Define secondary data and point out its merits and demerits. Mention any four of the sources of secondary data.
12	Explain the steps involved in the construction of a frequency table for a given set of raw data.
13	Sketch a histogram for the following data: Class: 0 – 10 10 – 30 30 – 60 60 – 80 80 – 90 90 – 100 Freq.: 6 10 14 12 6 2
14	Explain the merits and demerits of graphical representation of data
15	Explain harmonic mean. Obtain the average speed of a train covering its first 30 kms at a speed of 60 kms/h, next 40 kms at a speed of 80 kms/hr and the last 20 kms at a speed of 40 kms/hr.
16	A box contains 8 blue and 6 red balls. If 3 balls are drawn at random, what is the probability

	that the selected balls are (i) All are blue (ii) no blue (iii) one red and two blue balls.
17	If P(A) = 0.6, P(B) = 0.4 and $P(A^c \cup B^c) = 0.7$, find (i) P(AUB) (ii) $P(A/B^c)$ (iii) $P(A^c/B^c)$
18	State the frequency definition of probability. For two events A and B, prove that (i) $P(A^c) = 1 - P(A)$ (ii) P(AUB) = P(A)+P(B), if A and B are disjoint events.
Section C	
Answer any ONE .Each Question carries 10 marks (1x10=10 Marks)	
19	(i) Define partition values. Define quartiles, deciles and percentiles. Explain their inter relations. (ii) Calculate quartiles, 4^{th} and 6^{th} deciles and 35^{th} and 85^{th} percentile for the following data. Class: 0 – 10 10 – 20 20 – 30 30 – 40 40 – 50 50 – 60 60 – 70 70 – 80 Freq.: 7 14 18 24 15 12 6 4
20	Explain pair wise and mutual independence of three events A, B and C. Illustrate using an example that the pair wise independence of these three events need not imply their mutual independence.

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2024 Admission onwards

Maximum Time :2 Hours | **Maximum Marks :70**

Section A

All Questions can be answered.
Each Question carries 3 marks (Ceiling : 24 Marks)

1	Define (i) variable (ii) observation (iii) data set
2	Define discrete and continuous variables.
3	Define secondary data. Mention any two of its merits.
4	Define (i) class interval (ii) class mark (iii) frequency of a class.
5	Differentiate between one dimensional and two dimensional diagrams.
6	Define (i) central tendency (ii) average
7	Define median. Why median is considered as a partition value?
8	Define (i) quartile deviation (ii) variance
9	Define (i) random experiment (ii) sample space.
10	State the conditions for the mutual independence of three events A, B and C.

Section B

All Questions can be answered.
Each Question carries 6 marks (Ceiling : 36 Marks)

11	Define primary data. Explain its merits and demerits.
12	Explain various types of bar diagrams.
13	Sketch a frequency polygon for the following data: Class: 0 – 10 10 – 20 20 – 40 40 – 70 70 – 90 90 – 100 Freq.: 5 12 16 12 8 7
14	Find the mean and median for the following data: Class: 0 – 10 10 – 20 20 – 30 30 – 40 40 – 50 50 – 60 Freq.: 4 8 14 10 8 6
15	Define geometric mean (GM) and harmonic mean (HM). Calculate GM and HM for the observations 6, 10, 14, 20 and 24.

16	Define partition values. Explain quartiles, deciles and percentiles and their inter relations.
17	If P(A) = 0.6, P(B) = 0.4 and P(A / B) = 0.75, find (i) P(AUB) (ii) $P(AUB^c)$ (iii) $P(A^cUB^c)$
18	Define (i) mutually exclusive events (ii) independent events. If A and B are events with P(A) = 0.4, P(B) = 0.3, obtain P(AUB) when A and B are (a) mutually exclusive (b) independent.
Section C	
Answer any ONE .Each Question carries 10 marks (1x10=10 Marks)	
19	(i) Write a short note on skewness and kurtosis. (ii) Calculate the mean deviation about the mode for the following data: Class: 0 – 10 10 – 20 20 – 30 30 – 40 40 – 50 50 – 60 60 – 70 Freq.: 6 13 19 22 14 10 6
20	State Bayes' theorem. Two boxes A and B contain respectively 3 red, 6 blue balls and 5 red, 3 blue balls. One of the boxes is selected at random and two balls were drawn. If the balls obtained are one red and one blue, what is the probability that they were from the box B?