

**FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2024**

(FYUGP)

**CC24U STA1 MN110 - BASIC STATISTICS AND DATA VISUALIZATION**

(Statistics - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours

Maximum: 70 Marks

Credit: 4

**Part A** (Short answer questions)Answer *all* questions. Each question carries 3 marks.

- Describe discrete frequency distribution with examples [Level:2] [CO1]
- Describe direct personal investigation and indirect oral interviews with examples [Level:2] [CO1]
- Calculate the geometric mean [Level:3] [CO2]

Class	0-10	10-20	20-30	30-40	40-50
Frequency	5	7	15	25	8

- Calculate arithmetic mean for the following data [Level:3] [CO2]

Value	5	15	25	35	45	55	65	75
Frequency	15	20	25	24	12	31	71	52

- Calculate the Quartiles of 5, 8, 12, 20, 35, 25, 40, 30, 45. [Level:3] [CO3]
- Calculate the Range of 43, 25, 18, 29, 20, 9, 52, 69, 71, 50, 10. [Level:2] [CO3]
- Calculate  $P_{50}$  [Level:3] [CO3]  
10, 12, 15, 18, 20, 22, 25, 28, 30, 33, 35, 38, 40, 42, 45.
- Illustrate the importance of Statistical Quality Control. [Level:2] [CO4]
- Explain the control limits for np chart. [Level:2] [CO4]
- Describe process and product control. [Level:2] [CO4]

**(Ceiling: 24 Marks)****Part B** (Paragraph questions/Problem)Answer *all* questions. Each question carries 6 marks.

- Draw both ogives for the following frequency distribution [Level:3] [CO1]

Class	100-120	120-140	140-160	160-180	180-200
Frequency	12	14	8	6	10

12. Describe Histogram and Frequency polygon with examples. [Level:2] [CO1]

13. Explain Median in three different cases. [Level:2] [CO2]

14. Calculate Quartile Deviation. [Level:3] [CO3]

Size	5	8	10	12	19	20	32
Frequency	3	10	15	20	8	7	6

15. Compute Standard deviation [Level:3] [CO3]

Class	10-20	20-30	30-40	40-50	50-60
Frequency	3	7	10	5	3

16. Explain desirable properties of a good measures of dispersion. [Level:2] [CO3]

17. Discuss control chart for variables. [Level:2] [CO4]

18. Describe control chart for number of defects or C chart. [Level:2] [CO4]

**(Ceiling: 36 Marks)**

**Part C (Essay questions)**

Answer any *one* question. The question carries 10 marks.

19. Determine mean, median for the following data. [Level:3] [CO2]

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Number of students	3	10	15	20	12	7	3

20. Draw  $\bar{X}$  chart and R chart. The following data shows the values of sample mean  $\bar{X}$  and R for ten samples of size 5 each. Draw  $\bar{X}$  chart, R chart and determine whether the process is in control (for  $n = 5, A_2 = 0.577, D_3 = 0, D_4 = 2.115$ ). [Level:3] [CO4]

Sample no.	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	49	45	48	53	39	47	46	39	51	45
R	7	5	7	9	5	8	8	6	7	6

**(1 × 10 = 10 Marks)**

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