25U184 (Pages: 3) Name : .....

Reg. No : .....

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(FYUGP)

(Regular/Supplementary/Improvement)

CC24USTA1MN110 - BASIC STATISTICS AND DATA VISUALIZATION

(Statistics - Minor Course)

(2024 Admission onwards)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. Make a less than cumulative frequency table from the following frequency distributon. [Level:3] [CO1]

Class	Frequency
30-35	5
35-40	10
40-45	15
45-50	30
50-55	5
55-60	5

2. Describe direct personal investigation and indirect oral interviews with examples. [Level:2] [CO1]

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

Class	15-25	25-35	35-45	45-55	55-65	65-75
Frequency	4	11	19	14	0	2

4. Calculate the Harmonic Mean. [Level:3] [CO2]

Class	10-20	20-30	30-40	40-50	50-60
Frequency	4	6	10	7	3

5. Explain Range. [Level:2] [CO3]

6. Calculate D_3 , P_{80} [Level:3] [CO3]

   28, 30, 13, 15, 14, 34, 50, 90, 15, 21.

7. Calculate the Quartiles of 5, 8, 12, 20, 35, 25, 40, 30, 45. [Level:3] [CO3]

8. Illustrate application of np chart. [Level:2] [CO4]

9. Describe attributes with examples. [Level:2] [CO4]

10. Describe statistical quality control. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

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

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	9	16	28	14	5	3

12. Draw a Histogram for the following data. [Level:3] [CO1]

Variable	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	12	30	35	65	45	25	18

13. Describe Mode in three different cases. [Level:2] [CO2]

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

Class	10-20	20-30	30-40	40-50	50-60
Frequency	5	15	20	6	4

15. Calculate standard Deviation. [Level:3] [CO3]

Size	1	2	3	4	5	6	7
Frequency	30	40	42	44	46	48	58

16. Describe the purpose of measures of dispersion. [Level:2] [CO3]

17. Draw control chart for the number of defects (C chart).Given that 10 pieces of cloth out of different rolls of equal length contained the following number of defects 2, 3, 4, 0, 5, 6, 7, 4, 3, 2. State whether the process is in a state of statistical control. [Level:3] [CO4]

18. Describe the procedure for constructing R chart. [Level:2] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

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

19. Calculate mean and median for the following data. [Level:3] [CO2]

Class	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70
Frequency	12	18	22	27	17	23	29	8

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
$\bar{X}$	32.7	34.5	35.2	30.7	34.6	29.5	31	27.8	32.8	30.5
R	22	12	25	16	21	14	24	12	21	26

(1 × 10 = 10 Marks)

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