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Section = B

Semester = 6th

Attention no - of "

The following figure gives the number born to 50 women,

2	6	1	5	4	3	3	8	3	1
4	3	3	0	5	2	1	4	3	3
5	3	3	6	3	3	3	2	2	3
1	4	2	4	4	4	6	8	10	7
7	5	6	5	3	2	3	9	2	2

(1) Construct ~~the~~^a grouped and ungrouped frequency distribution of these data?

(2) Find mode and median from grouped & ungrouped frequency distribution

Solution :-

$$\text{Range} = x_m - x_0$$

$$10 - 0$$

$$\frac{10^2}{8^1} = 2$$

class	limit	Tally	frequency
0 - 2	2		13
2 - 4			21
4 - 6			9
6 - 8			5
8 - 10		#	2

Ungrouped;

Mode = 3 Most repeated number

$$\text{Median} = \left(\frac{n^{th}}{2} \right) \text{ even}$$

$$= \left(\frac{50}{2} \right) = 25^{th}$$

Grouped Data:

$$\text{Median} = l + \frac{h}{f} \left(\frac{n}{2} - c \right)$$

l = lower class boundary

h = class interval

f = frequency

$$= 2 + \frac{2}{21} \left(\frac{50}{2} - 13 \right)$$

$$\text{Median} = 3$$

~~mode is most repeated number~~
~~which is 3~~

Part "B" ~~group~~

	frequency	mid	c.f
0-2	13	1	13
2-4	21	3	34
4-6	9	5	43
6-8	5	7	48
8-10	2	9	50

Median =

$$\text{Mode} = l + \frac{f_m - f_0}{2f_m - f_0 - f_1} \times h$$

QNO 2

1

Class bound ^{ie}	Frequency (f)	Cumulative Frequency (cf)
1-5	3	3
5-9	13	16
9-13	6	22
13-17	10	32
17-21	5	37
21-25	3	40
25-29	5	45
29-33	3	48
33-37	2	50

$$\Sigma f = 50$$

$$Q_1 = \frac{n}{4} \Rightarrow \frac{50}{4} = 12.5$$

12.5 lies in 5-9 class boundary

$$\text{So, } Q_1 = l + \frac{h}{f} \left(\frac{n}{4} - c \right)$$

$$= 5 + \frac{4}{13} \left(\frac{50}{4} - 3 \right)$$

$$= 5 + .30 \left(\frac{50}{4} - 3 \right)$$

$$= 5 + .30 (9.5)$$

$$= 7.85$$

$$Q_2 = \frac{2n}{4} \Rightarrow \frac{2 \times 50}{4} = 25$$

25 lies in 13-17 class boundary

$$\text{So } Q_2 = l + \frac{h}{f} \left(\frac{2n}{4} - c \right)$$

$$= 13 + \frac{4}{10} \left(\frac{2 \times 50}{4} - 22 \right)$$

(3)

$$= 13 + \frac{4}{10} \quad (\text{25}) (25-22)$$

$$= 13 + \frac{4}{10} \quad (3)$$

$$Q_2 = 13 + 1.2$$

$$= 14.2$$

$$Q_3 = \frac{3n}{4} \Rightarrow \frac{3 \times 50}{4} \Rightarrow 37.5$$

37.5 lies in 21-25 class boundary

So

$$Q_3 = l + \frac{h}{f} \left(\frac{3n}{4} - c \right)$$

$$= 21 + \frac{4}{3} \left(\frac{3 \times 50}{4} - 37 \right)$$

$$= 21 + \frac{4}{3} (37.5 - 37)$$

$$= 21 + \frac{4}{3} (0.5)$$

$$= 21 + 0.67$$

$$Q_3 = 21.67$$

(4)

Deciles

$$D_1 = \frac{N}{10} \Rightarrow \frac{50}{10} = 5$$

4 lies in 5-9 class boundary

hence

$$D_1 = l + \frac{h}{f} \left(\frac{N}{10} - C \right)$$

$$= 5 + \frac{4}{13} \left(\frac{50}{10} - 3 \right)$$

$$= 5 + \frac{4}{13} (5 - 3)$$

$$= 5 + \frac{4}{13} (2)$$

$$= 5 + 0.61$$

$$D_1 = 5.61$$

$$D_2 = \frac{2N}{10} \Rightarrow \frac{2 \times 50}{10} \Rightarrow 10$$

10 lies in 5-9

hence

$$D_2 = l + \frac{h}{f} \left(\frac{2N}{10} - C \right)$$

(5)

$$D_2 = 5 + \frac{4}{13} \left(\frac{2 \times 50}{10} - 3 \right)$$

$$D_2 = 5 + \frac{4}{13} (10 - 3)$$

$$D_2 = 5 + 2.15$$

$$D_2 = 7.15$$

$$D_3 = \frac{3n}{10} \Rightarrow \frac{3 \times 50}{10} = 15$$

15 lies in 5-9 class boundary

$$\text{Hence } D_3 = l + \frac{h}{f} \left(\frac{3n}{10} - c \right)$$

$$D_3 = 5 + \frac{4}{13} \left(\frac{3 \times 50}{10} - 3 \right)$$

$$D_3 = 5 + \frac{4}{13} (15 - 3)$$

$$D_3 = 5 + \frac{4}{13} (15 - 3)$$

$$D_3 = 5 + 0.307 (12)$$

$$D_3 = 5 + 3.69$$

$$D_3 = 8.69$$

$$D_4 = \frac{4n}{10} \Rightarrow \frac{4 \times 50}{10} \Rightarrow 20$$

20 lies in 9-13 class boundary

$$\text{Hence } D_4 = l + \frac{h}{f} \left(\frac{4n}{10} - c \right)$$

$$D_4 = 9 + \frac{4}{6} (20 - 16)$$

$$D_4 = 9 + \frac{4}{6} (4)$$

$$D_4 = 9 + 2.67$$

$$D_4 = 11.67$$

$$D_5 = \frac{5n}{10} \Rightarrow \frac{5 \times 50}{10} \Rightarrow 25$$

25 lies in 13-17 class boundary

$$\text{Hence } D_5 = l + \frac{h}{f} \left(\frac{5n}{10} - c \right)$$

$$D_5 = 13 + \frac{4}{10} \left(\frac{5 \times 50}{10} - 22 \right) \quad (7)$$

$$= 13 + \frac{4}{10} (25 - 22)$$

$$= 13 + \frac{4}{10} (3)$$

$$= \underline{14.2}$$

$$D_6 = \frac{6n}{10} \Rightarrow \frac{6 \times 50}{10} = 30$$

30 lies in 13-17 class boundary

Hence

$$D_6 = l + \frac{h}{f} \left(\frac{6n}{10} - c \right)$$

$$= 13 + \frac{4}{10} \left(\frac{6 \times 50}{10} - 22 \right)$$

$$= 13 + \frac{4}{10} (30 - 22)$$

$$= 13 + \frac{4}{10} (8)$$

(8)

$$= 13 + 3.2$$

$$= \underline{16.2}$$

$$D_7 = \frac{7u}{10} \Rightarrow \frac{7 \times 50}{10} \Rightarrow 35$$

35 lies in 17-21 class

Hence

$$D_7 = l + \frac{u}{f} \left(\frac{7u}{10} - c \right)$$

~~$D_7 = 17 + \frac{4}{5} (35 - 32)$~~

$$D_7 = 17 + \frac{4}{5} (35 - 32)$$

$$= 17 + \frac{4}{5} (35 - 32)$$

$$= 17 + 2.4$$

$$= 19.4$$

(9)

$$D_8 = \frac{8u}{10} \Rightarrow \frac{8 \times 50}{10} = 40$$

40 lies in 21-25 class boundary

Hence

$$D_8 = l + \frac{h}{f} \left(\frac{8u}{10} - c \right)$$

$$= 21 + \frac{4}{3} \left(\frac{8 \times 50}{10} - 37 \right)$$

$$= 21 + \frac{4}{3} (40 - 37)$$

$$= 21 + \frac{4}{3} (3)$$

$$= 21 + 4$$

$$\underline{D_8 = 25}$$

$$D_9 = \frac{9u}{10} \Rightarrow \frac{9 \times 50}{10} = 45$$

45 lies in 25-29 class boundary

Hence

$$D_9 = l + \frac{h}{f} \left(\frac{9u}{10} - c \right)$$

10

$$Dq = 25 + \frac{4}{5} \left(\frac{9 \times 50}{10} - 40 \right)$$

$$Dq = 25 + \frac{4}{5} (45 - 40)$$

$$Dq = 25 + \frac{4}{5} (5)$$

$$Dq = 25 + 4$$

$$Dq = 29$$

Questions No - 3.

Define the following terms.

(a) Random Statistics :-

A numeric sequence is said to be statistically random when it contains no recognizable patterns or regularities. Sequences such as the result of an ideal dice roll or the digits of exhibit statistical randomness.

D-T-O

(b) Inferential statistics:-

- inferential statistics is a branch of statistic through which we collect the data. Analyse the data summarise the data. interpretate the data and tabulate the data. to get precise result in non-numerical form.

(c) ~~Descriptive~~ = Descriptive Statistics:-

the descriptive statistic can be defined as:

- the collection of data, Analysis of data, Summarization of data, interogation of data, tabulation of data at last we get a precise result in numerical form is called descriptive statistic.

(D)

"Nominal Scale"

it can be define as "the classification of the observation into mutually exclusive qualitative classes is said to be nominal scale."

Example :-

- ① Students are classified as male and female. we may use number 1 and 2.
- ② Rainfall may be classified as heavy moderate and light.
we may use number 1, 2, and 3 the number when they are used, only identify the categories. in this scale no particular order is used.

⇒ (E) Sources of primary data:-

- ① Direct personal investigation.
- ② indirect investigation.
- ③ Interview Method.
- ④ collection through Enumerators.
- ⑤ Questioner Method
- ⑥ collection through local sources.
- ⑦ computer interview method.