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Section B

Subject Probability and Statistic

Submitted To;

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(Q No 1) The following figure gives the number of children 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

Solution:

Range = $x_m - x_0$
 $10 - 0$

$\frac{10}{5} = 2$

Class	Limit	Tally	Frequency
0-2			13
2-4			21
4-6			9
6-8			5
8-10			2

(2)

Median

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

L = Lower class boundary

n = 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

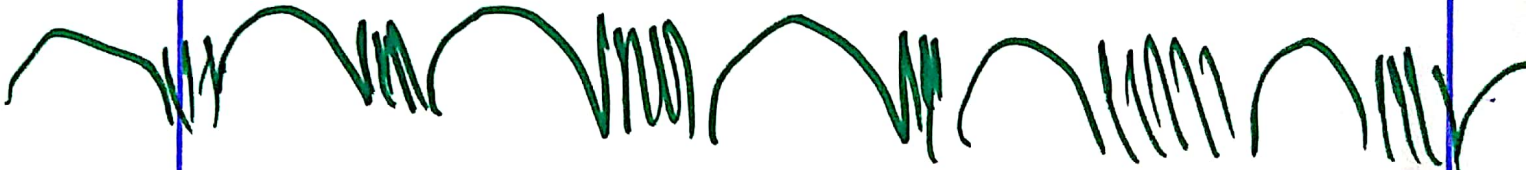
(3)

$$\text{median} = \left(\frac{n}{2} \right) \text{ ungroup}$$

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

$$= 25$$

mode is the most repeated number.



Question no 2

(Q No 2)

Answer: →

(14)

calculate Quartiles deciles.

class	class n	frequency f	frequency cf
2-4	1-5	3	3
6-8	5-9	13	16
10-12	9-13	6	22
14-16	13-17	10	32
18-20	17-21	5	37
22-24	21-25	3	40
26-28	25-29	5	45
30-32	29-33	3	50
34-36	33-37	2	

$$\Sigma = 50$$

Quasitile =

$$Q_1 = \frac{n}{4} \Rightarrow \frac{S_0}{4} = 12.5$$

12.5 lies in 5-9 class boundary

so

$$Q_1 = L + h/f (n/4 - c)$$

$$= 5 + \frac{4}{13} \left(\frac{S_0}{4} - 3 \right)$$

$$= 5 + 30 (12.5 - 3)$$

$$= 5 + 30(9.5)$$

$$= 7.85$$

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

25 lies in 13-17 class boundary

so

$$Q_2 = I + h/p \left(\frac{2n}{4} - c \right)$$

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

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

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

$$= 13 + 1.2$$

$$Q_2 = 14.2$$

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

37.5 lies in 21 - 25

So

$$Q_3 = I + h/p \left(\frac{3n}{4} - c \right)$$

$$= 21 + \frac{4}{13} (3 \times 50 - 37)$$

$$= 21 + 4/13 (37.5 - 37)$$

$$= 21 + 4/13 (0.5)$$

$$= 21 + 0.67$$

$$Q_3 = 21.67$$



Devils:

= :

$$D1 = \frac{n}{10} \Rightarrow \frac{50}{10} = 4$$

4 lies in 5-9 class boundary

Hence

$$D1 = l + n/f (\frac{n}{10} - c)$$

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

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

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

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

$$= 5 + 0.61$$

$$D_1 = 5.61$$

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

10 lines in 5-9

$$D_2 = \left(\frac{h}{f} \left(\frac{2n - c}{10} \right) \right)$$

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

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

$$D_2 = 5 + \frac{4}{13} (7)$$

$$D_2 = 5 + 2.15$$

$$D_2 = 7.15$$

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

15 lines in 5-9 class boundary

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

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

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

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

$$D_3 = 5 + 3.69$$

$$D_3 = 8.69$$

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

20 lines in 9-13 class boundary

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

(10) (3)

$$D_4 = 9 + \frac{4}{10} (4)$$

$$D_4 = 9 + 2.67$$

$$D_4 = 11.67$$

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

25 lines in 13-17.

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

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

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

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

$$= 14.2$$

(11)

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

30 lies in 13-17 class boundary

Hence

$$\begin{aligned} D_6 &= L + \frac{h}{f} \left(\frac{6n}{10} - c \right) \\ &= 13 + \frac{4}{10} \left(\frac{6 \times 50}{10} - c \right) \\ &= 13 + \frac{4}{10} (30 - 22) \\ &= 13 + \frac{4}{10} (8) \\ &= 13 + 3.2 \\ &= 16.2 \end{aligned}$$

(12) (12) (12)
35 lines in 17-21 class

Hence

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

$$D_7 = 17 + \frac{4}{5} \left(\frac{7 \times 50}{10} - 32 \right)$$

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

$$= 17 + 4/5 (3)$$

$$= 17 + 2.4$$

$$= 19.4$$

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

40 lines in 21-25 class boundary

Hence

$$D_8 = J + \frac{h}{f} (8n - c)$$

$$= 21 + \frac{4}{5} \left(\frac{8 \times 50}{10} - 37 \right)$$

$$= 21 + 4/5 (40 - 37)$$

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

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

$$= 21 + 4$$

$$D_8 = 25$$

$$D_9 = \frac{9n}{10} \Rightarrow \frac{9 \times 50}{10} \Rightarrow \frac{450}{10} = 45$$

45 lines in 25-29 days

Hence

$$D_9 = 25 + \frac{4}{5} \left(\frac{9n}{10} - c \right)$$

$$D_9 = 25 + \frac{4}{5} (9 \times 50 - 40)$$

$$D_9 = 25 + \frac{4}{5} (45 - 10)$$

$$D_9 = 25 + 4/5 (5)$$

$$D_9 = 25 + 4$$

$$D_9 = 29$$

(a) Random Statistics:

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

(b) Inferential Statistics:

Inferential statistics is a branch of statistics through which we collect the data, analysis the data, summarize the data, interpretate the data and tabulate the data to get precise result in non-numerical form.

(c) Descriptive Statistics:

(15)

the collection of data & analysis of data summarization of data interpretation of data tabulation of data at last we get a precise result in numerical form it is called descriptive statistics.

(d) 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.

(16) (16)

e) Nominal Scale:: It can be define
the classification of the observation
into mutually exclusive qualitative
classes is said to be nominal
scale.

E.g.:

i) Students are classified as male
and female. we may use number 1
and 2.

ii) Rainfall may be classified as
heavy, moderate and light
we may use number 1, 2, and 3,

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