



Blue Print (As per PU Board)

Topic	1 mark questions	2 marks questions	3 marks questions	5 marks questions	Total Marks
Statistics	-	1	-	1	7

One mark questions

- Find the range of 90, 50, 72, 69, 85, 100, 73, 85, 93
Answer: Range = 100 - 50 = 50
- Find the range of 25, 37, 11, 20, 14, 18, 16, 30, 35, 17
Answer: Range = 37 - 11 = 26
- Find the range of 17, 10, 12, 8, 12, 16, 19
Answer: Range = 19 - 8 = 11
- Write the mean of 6, 8, 10, 12, 14, 16, 18, 20, 22, 24
Answer: $\bar{x} = 15$
- Find the mean of the first n natural numbers.
Answer: $\bar{x} = \frac{1}{n} \frac{n(n+1)}{2} = \frac{n+1}{2}$
- Find the median for the following data 4, 6, 9, 4, 2, 8, 10
Answer: Arrange the values in ascending order
2, 4, 4, 6, 8, 9, 10
Median = 6

Five marks questions

- Find the mean deviation about the mean for the following frequency distribution

Class Interval	0-4	4-8	8-12	12-16	16-20
Frequency	4	6	8	5	2

Answer:

Class Interval	Frequency f_i	Mid Points x_i	$f_i x_i$	$ x_i - \bar{x} $	$f_i x_i - \bar{x} $
0-4	4	2	5	7.2	28.8
4-8	6	6	36	3.2	19.2
12-16	5	14	70	4.8	24.0
16-20	2	18	36	8.8	17.6
	N = 26		230		96.0

$$\text{Getting Mean} = \bar{x} = \frac{\sum f_i x_i}{N} = \frac{230}{26} = 8.85 - 1m$$

$$\text{Mean Deviation: } M.D(\bar{x}) = \frac{96}{26} = 3.69$$

- Find the mean deviation about the mean for the data

Marks scored	0-10	10-20	20-30	30-40	40-50
No. of students	3	8	12	10	7

Answer: A

Marks Scored	No. of students f_i	Mid points x_i	$f_i x_i$	$ x_i - \bar{x} $	$f_i x_i - \bar{x} $
0-10	3	5	15	22.5	67.5
10-20	8	15	120	12.5	100.0
20-30	12	25	300	2.5	30.0



30-40	10	35	350	7.5	75.0
40-50	7	45	315	17.5	122.5
	N = 40		1100		395.0

Getting Mean = $\bar{x} = \frac{1100}{40} = 27.5$

Mean Deviation: M.D (\bar{x}) = $\frac{395}{40} = 9.875$

9. Find the mean deviation about median for the data

Wages (in Rs.)	0-25	25-50	50-75	75-100	100-125	125-150
No of Persons	10	30	40	25	20	15

Answer:

Wages in Rs.	No. of Person	Cummulative frequency	Mid points x_i	$ x_i - M $	$f_i x_i - M $
0-25	10	10	12.5	56.25	562.5
25-50	30	40	37.5	31.5	937.5
50-75	40	80	62.5	6.25	250.00
75-100	25	105	87.5	18.75	468.75
100-125	20	125	112.5	43.75	875.00
125-150	15	140	137.5	68.75	1031.25
		N=140			4125.00

(50-75 is the median class)

$$\therefore \text{Median} = l + \frac{\frac{n}{2} - c}{f} \times h = 50 + \frac{70 - 40}{40} \times 25$$

$$= 50 + \frac{3}{4} \times 25 = 50 + \frac{75}{4}$$

$$= 50 + 18.75 = 68.75$$

10. Find the mean deviation about median for the Age distribution of 100 persons given below

Age	16-20	21-36	26-30	31-35	36-40	41-45	46-50	51-55
Number	5	6	12	14	26	12	16	9

Answer:

Age	f_i	Cummulative frequency	Mid points x_i	$ x_i - M $	$f_i x_i - M $
15.5-20.5	5	5	18	20	100
20.5-25.5	6	11	23	15	90
25.5-30.5	12	23	28	10	120
30.5-35.5	14	37	33	5	70
35.5-40.5	26	63	38	0	0
40.5-45.5	12	75	43	5	60
45.5-50.5	16	91	48	10	160
50.5-55.5	9	100	53	15	135
	N-100				735

N = 100 Therefore class is 35.5-40.5



$$\therefore \frac{N}{2} = 50$$

Writing Median $M = 32$

$$\therefore \text{Mean Deviation } (M) = \frac{735}{100} = 7.35$$

11. Find the mean deviation about median for the following frequency distribution

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5	8	15	16	6

Answer:

Mark	No. of students	Cummulative frequency	Mid Points x_i	$ x_i - M $	$f_i x_i - M $
0-10	5	5	5	23	115
10-20	8	13	15	13	104
20-30	15	28	25	3	45
30-40	16	44	35	7	112
40-50	6	50	45	17	102
	N = 50				478

Writing Median = 28

$$\text{Mean Deviation } (M) = \frac{478}{50} = 9.56$$

$$\therefore \text{Co-efficient of M.D } (M) = \frac{9.56}{28} = 0.3414$$

12. Find the mean, variance and standard deviation for the following data. 5, 8, 12, 15, 7, 9, 13, 11

Answer: $N = 8$

$$\text{Mean } = \bar{x} = \frac{\sum x_i}{N}$$

$$\frac{5+8+12+15+7+9+13+11}{8} = 10$$

$$(x_i - \bar{x}) - 5, -2, 2, 5, -3, +1, 3, 1$$

$$\therefore \sum (x_i - \bar{x})^2 = 25 + 4 + 4 + 25 + 9 + 1 + 9 + 1 = 78$$

$$\text{Variance} = \sigma^2 = \frac{\sum (x_i - \bar{x})^2}{N} = \frac{78}{8} = 9.75$$

$$\begin{aligned} \therefore \text{Standard Deviation } \sigma &= \sqrt{\text{variance}} \\ &= \sqrt{9.75} \\ &= 3.12 \end{aligned}$$