

CLASS XI – MATHEMATICS – CHAPTER 15
STATISTICS

Name:

Date:

Q01. In a test with a maximum score 25, eleven students scored 3,9,5,3,12,10,17,4,7,19,21 marks respectively. Calculate the range.

Q02. Coefficient of variation of two distributions is 70% and 75%, and their standard deviations are 28 and 27 respectively what are their arithmetic mean?

Q03. Write the formula for mean deviation.

Q04. Write the formula for variance.

Q05. Find the median for the following data.

x_i	5	7	9	10	12	15
f_i	8	6	2	2	2	6

Q06. Write the formula of mean deviation about the median.

Q07. Find the range of the following series 6, 7, 10, 12, 13, 4, 8, 12.

Q08. Find the mean of the following data 3, 6, 11, 12, 18.

Q09. Find mean deviation about mean of the following observation
3, 9, 5, 3, 12, 10, 17, 4, 7, 19, 21 marks respectively.

Q10. An analysis of monthly wages paid to workers in two firms A and B, belonging to the same industry gives the following results.

	Firm A	Firm B
No of wages earned	1000	1200
Average monthly wages	Rs 2800	Rs 2800
Variance of distribution wages	100	169

(a). Which firm A or B pays larger amount as monthly wages?

(b). Which firm, A or B, shows greater variability in individual wages?

Q11. What are the median class of the observation.

Wages	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
No. Of Workers	4	6	10	20	10	6	4

Q12. Write limitation of mean deviation.

Q13. Find the mean deviation about the mean from the following data
38, 70, 48, 40, 42, 55, 63, 46, 54, 44.

Q14. What do you understand by measures of dispersion?

Q15. Find the range 20, 28, 40, 12, 30, 15, 50.

Q16. The mean of 2,7,4,6,8 and p is 7. Find the mean deviation about the median of these observations.

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Q17. Find the mean deviation about the mean for the following data.

x_i	10	30	50	70	90
f_i	4	24	28	16	8

Q18. Find the mean, standard deviation and variance of the first n natural number.

x_i	4	8	11	17	20	24	32
f_i	3	5	9	5	4	3	1

Q19. Find the mean variance and standard deviation for following data.

Q20. The mean and standard deviation of 6 observations are 8 and 4 respectively. If each observation is multiplied by 3, find the new mean and new standard deviation of the resulting observations.

Q21. Prove that the standard deviation is independent of any change of origin, but is dependent on the change of scale.

Q22. Calculate the mean deviation about the mean for the following data

Expenditure	0-100	100-200	200-300	300-400	400 – 500	500 – 600	600 – 700	700 – 800
Persons	4	8	9	10	7	5	4	3

Q23. Find the mean deviation about 40th the median for the following data

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Boys	8	10	10	16	4	2

Q24. An analysis of monthly wages point to workers in two firms A and B, belonging to the same industry, given the following result.

	Firm A	Firm B
No of wages earns	586	648
Average monthly wages	Rs 5253	Rs 5253

Q25. Find the mean deviation about the median of the following frequency distribution.

Height (inch)	0 – 6	6 – 12	12 – 18	18 – 24	24 – 30
No.of Students	8	10	12	9	5

Q26. Calculate the mean deviation from the median from the following data

Salary per week	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. Of Workers	4	6	10	20	10	6

Q27. If each of the observation x_1, x_2, \dots, x_n is increased by 'a' where a is a negative or positive number show that the variance remains unchanged.

Q28. Find the mean and variance of first n natural numbers.

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Q29. Find the mean deviation about median for the following data.

Marks	0 – 6	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. Of Girls	6	8	14	16	4	2

Q30. Find mean deviation about mean for the following data.

Marks	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. Of Students	2	3	8	14	8	3

Q31. Find the mean deviation about the median for the data 36, 72, 46, 42, 60, 45, 53, 46, 51, 49.

Q32. Find the mean deviation about the mean.

x_i	5	10	15	20	25
f_i	7	4	6	3	5

Q33. Find the mean, variance, and standard deviation using short out method.

Height(cm)	70-75	75-80	80-85	85-90	90-95	95-100	100-105	105-110	110-115
No. of Girls	3	4	7	7	15	9	6	6	3

Q34. From the data given state which group is more A or B

	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Group A	9	17	32	33	40	10	9
Group B	10	20	30	29	43	15	7

Q35. Find the mean deviation about median.

X_i	15	21	27	30	35
f_i	3	5	6	7	8

Q36. Find the mean deviation about mean from the following data. 4, 7, 8, 9, 10, 12, 13, 17

Q37. Find the mean deviation about median for the following.

Height (cm)	95 – 105	105 – 115	115 – 125	125 – 135	135 – 145	145 – 155
No. of Persons	9	13	26	30	12	10

Q38. Find the mean deviation about the medians from the data.

13, 16, 17, 14, 13, 11, 16, 10, 18, 11, 12, 17

Q39. Find the mean and variance for the following 6, 7, 10, 12, 13, 4, 8, 12.

Q40. Calculate the mean, variance and standard deviation of the following data:

Classes	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	3	7	12	15	8	3	2

Q41. The mean and the standard deviation of 100 observations were calculated as 40 and 5.1 respectively by a student who mistook one observation as 50 instead of 40. What are the correct mean and Standard Deviation (S. D.)?

Q42. Let x_1, x_2, \dots, x_n values of a variable Y and let 'a' be a non zero real number. Then prove that the variance of the observations ay_1, ay_2, \dots, ay_n is $a^2 \text{var}(Y)$. Also, find their S.D.

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Q43. 200 candidates the mean and standard deviation was found to be 10 and 15 respectively. After that it was found that the score 43 was misread as 34. Find the correct mean and correct Standard Deviation.

Q44. Find the mean deviation from the mean 6, 7, 10, 12, 13, 4, 8, 20.

Q45. The diameter of a semi circle(in mm) drawn in design are as following.

Diameter	33 – 36	37 – 40	41 – 44	45 – 48	49 – 52
No. of Semicircles	15	17	21	22	25

Calculate the standard deviation and mean diameter of the circle.

Q46. Find the mean and variance of the following data.

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	8	15	16	6