CHAPTER -15

STATSTICS

TWO MARKS QUESTION:

1. Write the mean of the given data: 6, 7, 10, 12, 13, 4, 8, 12. (U)

2. Write the mean of the given data: 4, 7, 8, 9, 10, 12, 13, 17. (U)

3. Write the mean of the given data: 38,70,48,40,42,55,63,46,54,44. (U)

4. Compute the variance and Standard deviation of the following observations of marks of 5 students.

Class: marks out of 25: 8, 12, 13, 15, 22. (U)

5. Co-efficient of variation and the standard deviation of certain distribution is 60 and 21 respectively.

Find the arithmetic mean of the arithmetic mean. (A)

6. Find the variance of 6, 8, 10, 12, 14. (U)

7. The standard deviation of certain data is 4. Find the variance. (U)

8. The mean of 200 scores is 48 and their standard deviation n is 3. Find the sum and sum of the squares of scores. (A)

9. Find the variance and standard deviation of the five observations: 11, 14,15,17,18. (U)

10. Find the mean and variance for the following data: 2, 4,5,6,7,8,17. (U)

11. Find the mean and variance for the following data:6,8,10,12,14,16,18,20,22,24. (U)

12. The scores of a batsmen in 10 matches are 38,70,48,34,42,55,63,46,54,44. Find standard deviation and variance. (A)

13. The mean and variance of heights of XI students are 162.6cm and 127.69cm^2 respectively.

Find the coefficient of variation. (A)

14. Two series A and B with equal means have standard deviation 9 and 10 respectively. Which series is more consistent? (S)

15. Find the mean and variance for the following data: 6, 7, 10, 12, 13, 4, 8, 12. (U)

16 .Find the mean deviation about the mean for the following data:6,7,10,12,13,4,8,12. (U)

17. Find the mean deviation about the mean for the following

data:12,3,18,17,4,9,17,19,20,15,8,17,2,3,16,11,3,1,0.5. (U)

18. Find the mean deviation about the mean for the following data:4,7,8,9,10,12,13,17. (U)

19. Find the mean deviation about the mean for the following data:38,70,48,40,42,55,63,46,54,44. (U)

FIVE MARKS QUESTION:

1. Find the mean deviation about the median for the following data:13,17,16,14,11,13,10,16,11,18,12,17. (U)

2.Find the mean deviation about the median for the following data:36,72,46,60,45,53,46,51,49. (U)

3. Find the mean deviation about the median for the following data:3,9,5,3,12,10,18,4,7,19,21. (U)

4. Find the mean deviation about the mean for the following data: *(U)*

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

5. Find the mean deviation about the median for the following data: (A)

x_i	3	6	9	12	13	15	21	22
f_i	3	4	5	2	4	5	4	3
c.f	3	7	12	14	18	23	27	30

6. Find the mean deviation about the mean for the following data: (A)

Marks obtainined	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of students	2	3	8	14	8	3	2

7. Calculate the mean deviation about median for the following data: (A)

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	6	7	15	16	4	2

8. *Find the mean deviation about the mean for the following data:* *(A)*

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

9. *Find the mean deviation about the mean for the following data:* *(A)*

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

10. *Find the mean deviation about the median for the following data:* *(A)*

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

11. Find the mean deviation about the mean for the following data: (A)

Marks obtainined	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of students	2	3	8	14	8	3	2

12. *Find the mean deviation about the median for the following data:* *(A)*

x_i	*15*	*21*	*27*	*30*	*35*
f_i	*3*	*5*	*6*	*7*	*8*

13. Find the mean deviation about the mean for the following data: (A)

Income per day	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800
No.of persons	4	8	9	10	7	5	4	3

14. Find the mean deviation about the mean for the following data: (A)

Height in cms	95-105	105-115	115-125	125-135	135-145	145-155
Number of boys	9	13	26	30	12	10

15. Find the mean deviation about the median for the following data: (A)

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

16. Calculate the mean deviation about median age for the age distribution of 100 persons given be Find the mean deviation about the mean for the following data: (A)

Age	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
Number	5	6	12	14	26	12	16	9

17. Find the variance and standard deviation for the following data: (A)

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

18. Calculate the mean, variance and standard deviation for the following distribution: (A)

Class	*30-40*	*40-50*	*50-60*	*60-70*	*70-80*	*80-90*	*90-100*
Frequency	*3*	*7*	*12*	*15*	*8*	*3*	*2*

19. Find the Variance of the following data: 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 (A)

20. Find the standard deviation for the following data: (A)

x_i	*3*	*8*	*13*	*18*	*23*
f_i	*7*	*10*	*15*	*10*	*6*

21. Find the mean and variance for First n natural numbers. (S)

22. Find the mean and variance for first 10 multiples of 3. (A)

23. Find the mean and variance for the following data: (A)

x_i	*6*	*10*	*14*	*18*	*24*	*28*	*30*
f_i	*2*	*4*	*7*	*12*	*8*	*4*	*3*

24. Find the mean and variance for the following data: (A)

x_i	*92*	*93*	*97*	*98*	*102*	*104*	*109*
f_i	*3*	*2*	*3*	*2*	*6*	*3*	*3*

25. Find the mean and standard deviation using short-cut method: (A)

x_i	*60*	*61*	*62*	*63*	*64*	*65*	*66*	*67*	*68*
f_i	*2*	*1*	*12*	*29*	*25*	*12*	*10*	*4*	*5*

26. Calculate the mean, variance and standard using short-cut method : (A)

Class	*30-40*	*40-50*	*50-60*	*60-70*	*70-80*	*80-90*	*90-100*
Frequency	*3*	*7*	*12*	*15*	*8*	*3*	*2*

27. Find the mean, variance for the following frequency distributions : (A)

Class	*0-30*	*30-60*	*60-90*	*90-120*	*120-150*	*150-180*	*180-210*
Frequency	*2*	*3*	*5*	*10*	*3*	*5*	*2*

28. Find the mean, variance for the following frequency distributions : (A)

Class	*0-10*	*10-20*	*20-30*	*30-40*	*40-50*
Frequency	*5*	*8*	*15*	*16*	*6*

29. Find the mean, Variance and standard deviation using short-cut method: (A)

Height in cms	*70-75*	*75-80*	*80-85*	*85-90*	*90-95*	*95-100*	*100-105*	*105-110*	*110-115*
Number of boys	*3*	*4*	*7*	*7*	*15*	*9*	*6*	*6*	*3*

0. The diameters of circles (in mm) drawn in a design are given below: (A)

Diameters	*33-36*	*37-40*	*41-44*	*45-48*	*49-52*
No.of circles	*15*	*17*	*21*	*22*	*25*

Calculate the standard deviation and mean diameter of the circles.

31. Two plants A and B of a factory show following results about the number of workers and the wages paid to them.

	A	B
No. of workers	5000	6**000**
Average monthly wages	Rs.2500	Rs.2500
Variance of distribution of wages	81	100

Which plant, A or B is there greater variability in individual wages? (A)

32. The following values are calculated in respect of heights and weights of the students of a section of class XI:

	Height	Weight
Mean	162.6cm	52.36kg
Variance	$127.69cm^2$	$23.1361kg^2$

Can we say that the weights show greater variation than the heights? (A)

33. From the data given below state which group is more variable, A or B? (A)

Marks	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	25	43	15	7

34. From the prices of shares X and Y below, find out which is more stable in value: (A)

X	35	54	52	53	56	58	52	50	51	49
Y	108	107	105	105	106	107	104	103	104	101

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

	Firm A	Firm B
No.of wages earners	586	648
Mean of monthly wages	Rs.5253	Rs.5253
Variance of the distribution of wages	100	121

(i)Which firm A or B pays larger amount as monthly wages? (ii) Which firm, A or B, shows greater variability in individual wages?

36. The following is the record of goals scored by team A in football session:

No.of goals scored	0	1	2	3	4
No.of matches	1	9	7	5	3

From the team B, mean number of goals scored per match was 2 with a standard deviation 1.25 goals.

Find which team may be considered more consistent? (A)

37. The sum and sum of squares corresponding to length x (in cm) and weight y (ingm) of 50 plant products are given below:l $\sum_{i=1}^{50} x_i = 212,\ \sum_{i=1}^{50} x^2{}_i = 902.8,\ \sum_{i=1}^{50} y_i = 261,\ \sum_{i=1}^{50} y^2{}_i = 1457.6$ Which is more varying, the length or weight? (S)

38. The variance of 20 observations is 5. If each observation is multiplied by 2, find the new variance of the resulting observations. (A)

39. The mean 5 observations is 4.4 and their variance is 8.24. If three of observations are 1,2 and 6, find the other two observations. (A)

40. If each of the observation $x_1, x_2, ...x_n$ is increased by 'a', where a is a negative or positive number, show that the variance remains unchanged. (S)

41. The mean and standard deviation of 100 observations were calculated as 40 and 5.1, respectively by a student who took by mistake 50 instead of 40 for one observation. What are the correct mean and standard deviation? (A)

42. The mean and variance of eight observations are 9 and 9.25, respectively. If six of the observations are 6, 7, 10, 12, 12 and 13, find the remaining two observations. (A)

43. The mean and variance of 7 observations are 8 and 16, respectively. If five of the observations are 2, 4, 10, 12, 14. Find the remaining two observations. (A)

44. The mean and standard deviation of six 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. (S)

45. Given that $\bar{x}$ is the mean and σ^2 is the variance of n observations $x_1, x_2, ...x_n$. Prove that the mean and variance of the observations $ax_1, ax_2, ...ax_n$ are a$\bar{x}$ and a$^2\sigma^2$, respectively, ($a \neq 0$). (S)

46. The mean and standard deviation of 20 observations are found to be 10 and 2, respectively. On rechecking, it was found that an observation 8 was incorrect. Calculate the correct mean and standard deviation in each of the following cases. (i) If wrong item is omitted.
(ii) If it is replaced by 12. (S)

47. The mean and standard deviation of marks obtained by 50 students of a class in three subjects, Mathematics, physics and chemistry are given below:

Subject	Mathematics	Physics	Chemistry
Mean	42	32	40.9
Standard deviation	12	15	20

Which of the three subjects shows the highest variability in marks and which shows the lowest (A)

48. The mean and standard deviation of a group of 100 observations were found to be 20 and 3, respectively. Later on it was found that three observations were incorrect, which were recorded as 21, 21 and 18. Find the mean and standard deviation if the incorrect observations are omitted. (A)

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