Date: 29/9/2021

Q1. Find the value of x, if the mode of the following data is 25:

15, 20, 25, 18, 14, 15, 25, 15, 18, 16, 20, 25, 20, x, 18.

Q2. Find the mode of the following data:

25, 16, 19, 48, 19, 20, 34, 15, 19, 20, 21, 24, 19, 16, 22, 16, 18, 20, 16, 19.

Q3. Find the mode of the following data:

120, 110, 130, 110, 120, 140, 130, 120, 140, 120.

Q4. Find the median of the daily wages of ten workers from the following data:

Rs. 20, 25, 17, 18, 8, 17, 22, 11, 9, 14.

Q5. The following are the marks of 9 students in a class. Find the median

34, 32, 48, 38, 24, 30, 27, 21, 35.

Q6. What is the algebraic sum of deviations of a frequency distribution about its mean?

Q7. Define mean.

Q8. Calculate the mean for the following distribution:

x :	5	6	7	8	9
y :	4	8	14	11	3

Q9. Write the modal class for the following frequency distribution:

Class-interval :	10 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency :	30	35	75	40	30	15

Q10. What is the value of the median of the data using the graph in the following figure of less than ogive and more than ogive?

Q11. Which measure of central tendency can be determined graphically?

Q12. Write the empirical relation between mean, mode and median.

Q13. In the graphical representation of a frequency distribution, if the distance between mode and mean is k times the distance between median and mean, then write the value of k.

Q14. Which measure of central tendency is given by the x-coordinate of the point of intersection of the 'more than' ogive and 'less than' ogive?

Q15. Find the class marks of classes 10 – 25 and 35 – 55.

Q16. Write the median class of the following distribution:

Classes :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	4	4	8	10	12	8	4

Q17. Which of the following is not a measure of central tendency?

(a) Mean (b) Median (c) Mode (d) Standard deviation

Q18. The algebraic sum of the deviations of a frequency distribution from its mean is

(a) always positive (b) always negative (c) 0 (d) a non-zero number

Q19. The arithmetic mean of 1, 2, 3, ..., n is

(a) $\frac{n+1}{2}$ (b) $\frac{n-1}{2}$ (c) $\frac{n}{2}$ (d) $\frac{n}{2}+1$

Q20. For frequency distribution, mean , median and mode are connected by the relation

(a) Mode = 3 Mean – 2 Median (b) Mode = 2 Median – 3 Mean

(c) Mode = 3 Median – 2 Mean (d) Mode = 3 Median + 2 Mean

Q21. Which of the following cannot be determined graphically?

(a) Mean (b) Median (c) Mode (d) None of these

Q22. The mean of n observations is X. If the first item is increased by 1, second by 2 and so on, then the new mean is

(a) $\bar{X}+n$ (b) $\bar{X}+\frac{n}{2}$ (c) $\bar{X}+\frac{n+1}{2}$ (d) None of these

Q23. If the mean of the following distribution is 2.6, then the value of y is

Variable (x):	1	2	3	4	5
Frequency:	4	5	y	1	2

(a) 3 (b) 8 (c) 13 (d) 24

Q24. The arithmetic mean and mode of a data are 24 and 12 respectively, then its median is

(a) 25 (b) 18 (c) 20 (d) 22

Q25. If the mean of first n natural numbers is $\frac{5n}{9}$, then n =

(a) 5 (b) 4 (c) 9 (d) 10

Q26. If the mean of 6, 7, x, 8, y, 14 is 9, then

(a) $x + y = 21$ (b) $x + y = 19$ (c) $x - y = 19$ (d) $x - y = 21$

Q27. If the mean of a frequency distribution is 8.1 and $\sum f_i x_i = 132 + 5k$, $\sum f_i = 20$, then k =

(a) 3 (b) 4 (c) 5 (d) 6

Q28. The mean of 1, 3, 4, 5, 7, 4 is m. The numbers 3, 2, 2, 4, 3, 3, p have mean $m - 1$ and median q. Then, $p + q$ =

(a) 4 (b) 5 (c) 6 (d) 7

Q29. If the mode of the data: 16, 15, 17, 16, 15, x, 19, 17, 14 is 15, then x =

(a) 15 (b) 16 (c) 17 (d) 19

Q30. The median of first 10 prime number is

(a) 11 (b) 12 (c) 13 (d) 14

Q31. If the median of the data: 6, 7, $x - 2$, x, 17, 20, written in asccending order, is 16. Then x =

(a) 15 (b) 16 (c) 17 (d) 18

Q32. If the median of the data: 24, 25, 26, $x + 2$, $x + 3$, 30, 31, 34 is 27.5 then x =

(a) 27 (b) 25 (c) 28 (d) 30

Q33. If the arithmetic mean of x, $x + 3$, $x + 6$, $x + 9$ and $x + 12$ is 10, the x =

(a) 1 (b) 2 (c) 4 (d) 6

Q34. If the mode of the data: 64, 60, 48, x, 43, 48, 43, 34 is 43, then $x + 3$ =

(a) 44 (b) 45 (c) 46 (d) 48

Q35. The mean of first n odd natural number is

(a) $\frac{n+1}{2}$ (b) $\frac{n}{2}$ (c) n (d) n^2

Q36. The mean of first n odd natural numbers is $\frac{n^2}{81}$, then n =

(a) 9 (b) 81 (c) 27 (d) 18

Q37. If the difference of mode and median of a data is 24, then the difference of median and mean is

(a) 12 (b) 24 (c) 8 (d) 36

Q38. If the arithmetic mean of 7, 8, x, 11, 14 is x, then x =

(a) 9 (b) 9.5 (c) 10 (d) 10.5

Q39. If the mean of first n natural number is 15, then n =

(a) 15 (b) 30 (c) 14 (d) 29

Q40. If $u_i = \frac{x_i - 25}{10}$, $\sum f_i u_i = 20$, $\sum f_i = 100$, then $\bar{x}$ =

(a) 23 (b) 24 (c) 27 (d) 25

Q41. Find the mean of the following distribution:

x :	4	6	9	10	15
y :	5	10	10	7	8

Q42. Following table shows the weight of 12 students:

Weight (in kgs) :	67	70	72	73	75
Number of students:	4	3	2	2	1

Find the mean weight of the students.

Q43. Find the mean of the following distribution:

x :	10	30	50	70	89
y :	7	8	10	15	10

Q44. Find the value of p, if the mean of the following distribution is 7.5.

x :	3	5	7	9	1	13
y :	6	8	15	p	8	4

Q45. If the mean of the following data is 20.6. Find the value of p.

x :	10	15	p	25	35
y :	3	10	25	7	5

Q46. Find the value of p for the following distribution whose mean is 16.6.

x :	8	12	15	p	20	25	30
y :	12	16	20	24	16	8	4

Q47. The following table shows the weights of 12 students:

Weight (in kg) :	67	70	72	73	75
Number of students :	4	3	2	2	1

Find the mean weight by using short-cut method.

Q48. Find the mean wage from the data given below:

Weight (in kg) :	800	820	860	900	920	980	1000
No. of workers:	7	14	19	25	20	10	5

Q49. The following table gives the number of branches and number of plants in the garde of a school.

No. of branches (x) :	2	3	4	5	6
No. of plants (f) :	49	43	57	38	13

Q50. Obtain the median for the following frequency distribution:

x :	1	2	3	4	5	6	7	8	9
f :	8	10	11	16	20	25	15	9	6

Q51. The arithmetic mean of the following data is 14. Find the value of k.

x_i :	5	10	15	20	25
f_i :	7	k	8	4	5

Q52. The arithmetic mean of the following data is 25. Find the value of k.

x_i :	5	15	25	35	45
f_i :	3	k	3	6	2

Q53. If the mean of the following data is 18.75. Find the value of p.

x_i :	10	15	p	25	30
f_i :	5	10	7	8	2

Q54. Find the missing frequencies in the following frequency distribution if its is known that the mean of the distribution is 1.46.

Number of accidents (x) :	0	1	2	3	4	5	Total
Frequency (f) :	46	?	?	25	10	5	200

Q55. Find the missing value of p for the folowing distribution whose mean is 12.58.

x :	5	8	10	12	p	20	25
y :	2	5	8	22	7	4	2

Q56. Find the value of p, if the mean of the following distribution is 20.

x :	15	17	19	$20 + p$	23
y :	2	3	4	$5p$	6

Q57. Find the missing frequencies in the folowing frequency distribution if it is known that the mean of the distribution is 50.

x :	10	30	50	70	90	
y :	17	f_1	32	f_2	19	Total 120.

Q58. The following table gives weekly wages in rupees of workers in a certain commercial organization. The frequency of class 49 – 52 is missing. It is known that the mean of the frequency distribution is 47.2. Find the missing frequency.

Weekly wages (Rs.) :	40 – 43	43 – 46	46 – 49	49 – 52	52 – 55
Number of workers :	31	58	60	?	27

Q59. Find the mean of the following frequency distribution:

Class-interval :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of workers f :	7	10	15	8	10

Q60. The weights in kilograms of 60 workers in a factory are given in the following frequency table. Find the mean weight of a worker.

Weight (in kg) x :	60	61	62	63	64	65
No. of workers f :	5	8	14	16	10	7

Q61. Apply step-deiation method to find the AM of the following frequency distribution:

Variate (x) :	5	0	15	20	25	30	35	40	45	50
Frequency (f) :	20	43	75	67	72	45	39	9	8	6

Q62. Find the mean wage from the following data:

Wage (in Rs) :	800	820	860	900	920	980	1000
No of workers :	7	14	19	25	20	10	5

Q63. Find the average expenditure (in Rs.) per household.

Class-interval :	10 – 30	30 – 50	50 – 70	70 – 90	90 – 110	110 – 130
Frequency :	5	8	12	20	3	2

Q64. The number of students absent in a school was recorded every day for 147 days and the raw data was presented in the form of the following frequency table.

No. of students absent :	5	6	7	8	9	10	11	12	13	15	19	20
No. of days :	1	5	11	14	16	13	10	70	4	1	1	1

Obtain the median and describe what information it conveys.

Q65. Calculate the median from the following distribution:

Class :	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45
Frequency :	5	6	15	10	5	4	2	2

Q66. Calculate the median from the following data:

Marks :	0 – 10	10 – 30	30 – 60	60 – 80	80 – 90
No. of students :	5	15	30	8	2

Q67. Calculate the median from the following data:

Rent (in Rs.) :	15 – 25	25 – 35	35 – 45	45 – 55	55 – 65	65 – 75	75 – 85	85 – 95
No. of Houses :	8	10	15	25	40	20	15	7

Q68. Calculate the median from the following data:

Marks below :	10	20	30	40	50	60	70	80
No. of students :	15	35	60	84	96	127	198	250

Q69. An incomplete distribution is given as follows:

Variable :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency :	10	20	?	40	?	25	15

You are given that the median value is 35 and the sum of all the frequencies is 170. Using the median formula, fill up the missing frequencies.

Q70. Calculate the missing frequency from the following distribution, it being given that the median of the distribution is 24.

Age in years :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of persons :	5	25	?	18	7

Q71. Compute the mode for the following frequency distribution:

Size of items :	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20	20 – 24	24 – 28	28 – 32	32 – 36	36 – 40
Frequency :	5	7	9	17	12	10	6	3	1	0

Q72. If the median of the following data is 32.5, find the missing frequencies.

Class-interval :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	Total
Frequency :	f_1	5	9	12	f_2	3	2	40

Q73. If the median of the following frequency distribution is 28.5 find the missing frequencies:

Class-interval :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	Total
Frequency :	5	f_1	20	15	f_2	5	60

Q74. An incomplete distribution is given below:

Variable :	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency :	12	30	—	65	—	25	18

You are given that the median value is 46 and the total number of items is 230.

(i) Using the median formula fill up missing frequencies.

(ii) Calculate the AM of the completed distribution.

Q75. Compute the value of mode for the following frequency distribution:

Class :	100 – 110	110 – 120	120 – 130	130 – 140	140 – 150	150 – 160	160 – 170
Frequency :	4	6	20	32	33	8	2

Q76. For the following grouped frequency distribution find the mode:

Class :	3 – 6	6 – 9	9 – 12	12 – 15	15 – 18	18 – 21	21 – 24
Frequency :	2	5	10	23	21	12	3

Q77. The following table shows the age distribution of cases of a certain disease admtted during a year in a particular hospital.

Age (in years) :	5 – 14	15 – 24	25 – 34	35 – 44	45 – 54	55 – 64
No. of cases :	6	11	21	23	14	5

Find the average age for which maximum cases occurred.

Q78. Find the mode of the following distribution:

Class-interval :	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency :	30	45	75	35	25	15

Q79. Find the mode of the following distribution:

Class-interval :	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 60
Frequency :	25	34	50	42	37	14

Q80. The following observations relate to the height of a group of persons. Draw the two types of cumulative frequency polygons and cumulative frequency curves and determine the median.

Height in (cms)	Frequency
140 – 143	3
143 – 146	9
146 – 149	26
149 – 152	31
152 – 155	45
155 – 158	64
158 – 161	78
161 – 164	85
164 – 167	96
167 – 170	72
170 – 173	60
173 – 176	43
176 – 179	20
179 – 182	6

Q81. Draw an ogive and the cumulative frequency polygon for the following frequency distribution by less than method.

Marks :	0 – 10	10 – 20	20 – 30	30 – 40	40– 50	50 – 60
Number of students :	7	10	23	51	6	3

Q82. The frequency distribution of scores obtained by 230 candidates in a medical entrance test is as follows:

Scores :	400 – 450	450 – 500	500 – 550	550 – 600	600– 650	650 – 700	700– 750	750 – 800
Number of candidates :	20	35	40	32	24	27	18	24

Draw cumulative frequency curves by less than and more than method on the same axes. Also, draw the two types of cumulative frequency polygons.

Q83. Following is the age distribution of a group of students. Draw the cumulative frequency polygon, cumulative frequency curve (less tha type) and hence obtain the median value.

Age	Frequency	Age	Frequency
5 – 6	50	11 – 12	92
6 – 7	56	12 – 13	80
7 – 8	60	13 – 14	64
8 – 9	66	14 – 15	44
9 – 10	84	15 – 16	20
10 – 11	96	16 – 17	8

Q84. Draw a cumulative frequency curve and cumulative frequency polygon for the folowing frequency distribution by less than method.

Age (in years) :	0 – 9	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69
No. of persons :	5	15	20	23	17	11	9

Q85. Draw an ogive by less than method for the following data:

No. of rooms :	1	2	3	4	5	6	7	8	9	10
No. of house :	4	9	22	28	24	12	8	6	5	2

Q86. The monthly profits (in Rs.) of 100 shops are distributed as follows:

Profit per shop :	0 – 50	50 – 100	100 – 150	150 – 200	200– 250	250 – 300
No. of shops	12	18	27	20	17	6

Q87. The following table gives the height of trees:

Weight (in kg)	Number of students
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

Draw a less than type ogive for the given data. Hence, obtain the median weight from the graph and verify the result by using the formula

Q88. If the mean of the following distribution is 27, find the value of p.

Classes :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 40
Frequency :	8	p	12	13	10

Q89. Find the average expenditure (in Rs.) per household.

Classes :	25 – 29	29 – 34	35 – 39	40 – 44	45 – 49	50 – 54	55 – 59
Frequency :	14	22	16	6	5	3	4

Q90. If the mean of the following distribution 54, find the value of p:

Classes :	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
Frequency :	7	p	10	9	13

Q91. Find the mean of the following frequency distribution:

Classes :	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
Frequency :	15	18	21	29	17

Q92. The following table gives the height of trees:

Height	Frequency
Less than 7	26
Less than 14	57
Less than 21	92
Less than 28	134
Less than 35	216
Less than 42	287
Less than 49	341
Less than 56	360

Draw 'less than' ogiveand 'more than' ogive.

Q93. The mean of the following frequency table 50. But the frequencies f_1 and f_2 in class 20 – 40 and 60 – 80 are missing. Find the missing frequencies.

Class :	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	Total
Frequency :	17	f_1	32	f_2	19	120

Q94. Compute the median for the following cumulative frequency distribution:

Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70	Less than 80	Less than 90	Less than 100
0	4	16	30	46	66	82	92	100

Q95. If the median of the following frequency distribution is 46, find the missing frequencies.

Variable :	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	Total
Frequency :	12	30	?	65	?	25	18	229

Q96. Find the mean marks of the students from the following cumulative frequency distribution:

Marks :	Below 10	Below 20	Below 30	Below 40	Below 50	Below 60	Below 70	Below 80	Below 90	Below 100
Number of students :	5	9	17	29	45	60	70	78	83	85

Q97. The following table gives the distribution of total household expenditure (in rupees) of manual workers in a city.

Expenditure :	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500
Frequency :	24	40	33	28	30	22	16	7

Find the average expenditure (in Rs.) per household.

Q98. Find the mean marks of students from the following cumulative frequency distribution:

Marks	Number of students	Marks	Number of students
0 and above	80	60 and above	28
10 and above	77	70 and above	16
20 and above	72	80 and above	10
30 and above	65	90 and above	8
40 and above	55	100 and above	0
50 and above	43		

Q99. Find the mean, median and mode of the following data:

Class :	0 – 50	50 – 100	100 – 150	150 – 200	200 – 250	250 – 300	300 – 350
Frequency :	2	3	5	6	5	2	1

Q100. Find the mean, median and mode of the following data:

Class :	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120	120 – 140
Frequency :	6	8	10	12	6	5	3

Q101. The mean of the following frequency distribution is 62.8 and the sum of all the frequencies is 50. Compute the missing frequency f_1 and f_2.

Class :	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120
Frequency :	5	f_1	10	f_2	7	8

Q102. The following table gives the daily income of 50 workers of a factory:

Daily income (in Rs.) :	100 – 120	120 – 140	140 – 160	160 – 180	180 – 200
Number of workers :	12	14	8	6	10

Find the mean, mode and median of the above data.

Date: 29/9/2021

S1. Value of $x = 25$.

S2. Mode of the given data is 19.

S3. The mode or modal value is 120.

S4. Median = 16.

S5. Median = 32.

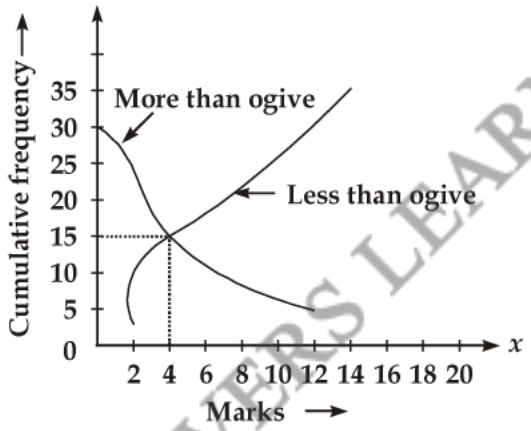
S6. Zero.

S7. Theory.

S8. 7.025.

S9. 20 – 25.

S10. Median = 4.



S11. Median.

S12. Mode = 3 Median – 2 Mean.

S13. Value of $k = 3$.

S14. Median.

S15. 17.5, 45.

S16. 30 – 40.

S17. **(d)** Standard deviation.

S18. **(c)** 0.

S19. **(a)** $\frac{n+1}{2}$.

S20. **(c)** Mode = 3 Median – 2 Mean.

S21. (a) Mean.

S22. (c) $\bar{X} + \frac{n+1}{2}$.

S23. (b) 8.

S24. (c) 20.

S25. (c) 9.

S26. (b) $x + y = 19$.

S27. (d) 6.

S28. (d) 7.

S29. (a) 15.

S30. (b) 12.

S31. (c) 17.

S32. (b) 25.

S33. (d) 6.

S34. (c) 46.

S35. (c) n.

S36. (b) 81.

S37. (a) 12.

S38. (c) 10.

S39. (d) 29.

S40. (c) 27.

S41. 9.

S42. 70.25 kg.

S43. 55.

S44. Value of $p = 3$.

S45. Value of $p = 20$.

S46. Value of $p = 18$.

S47. Mean = 70.25 kg.

S48. Mean wage = Rs. 891.2.

S49. 3.62 (approx).

S50. Median = 5.

S51. Value of $k = 6$.

S52. Value of $k = 4$.

S53. Value of $p = 20$.

S54. $f_1 = 76$ and $f_2 = 38$.

S55. 15.

S56. Value of $p = 1$.

S57. $f_1 = 28$ and $f_2 = 24$.

S58. The missing frequency = 44.

S59. Mean = 25.8.

S60. Mean weight of a worker = 62.65 kg.

S61. Mean = 22.214.

S62. Mean wage = Rs. 891.2.

S63. The average expenditure is Rs. 65.6.

S64. Median = 12.

S65. Median = 19.5.

S66. Median = 40.

S67. 58.

S68. 59.35.

S69.

Class:	20 – 30	40 – 50
Frequency:	35	25

S70. 25.

S71. Mode = 32.66.

S72. $f_1 = 3$ and $f_2 = 6$.

S73. $f_1 = 8$ and $f_2 = 7$.

S74. Missing frequencies 34 and 46, Mean = 45.87.

S75. Mode = 140.9.

S76. Mode = 14.6.

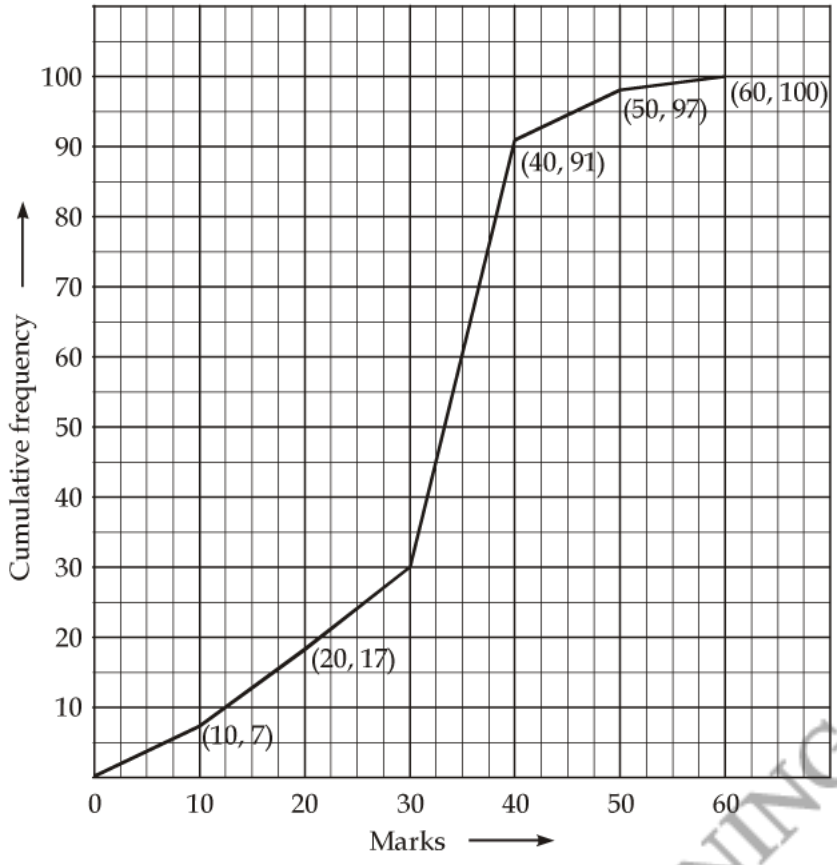
S77. Mode = 36.31.

S78. Mode = 12.14.

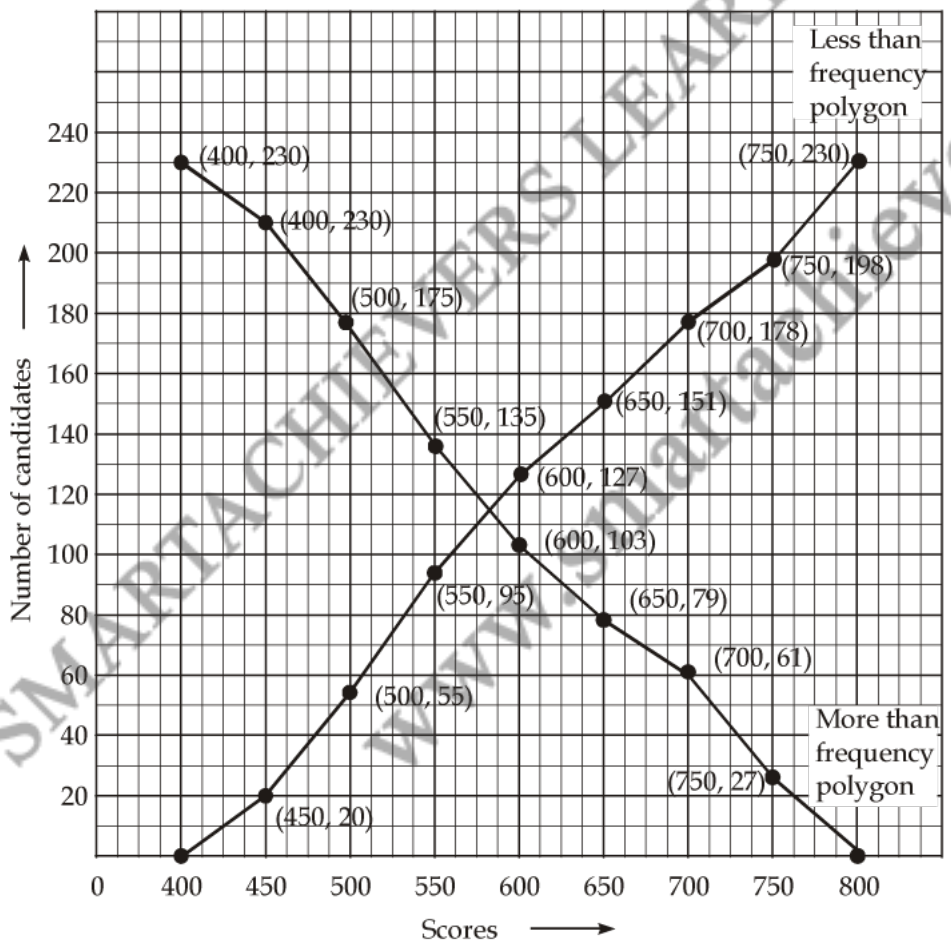
S79. Mode = 38.33.

S80. Median = 163.2 cm. (Draw figure.)

S81.



S82.



S83. Median = 355. (Draw figure.)

S84. Draw figure.

S85. Draw figure.

S86. Draw figure.

S87. 17.5 kg. (Draw figure.)

S88. Value of $p = 7$.

S89. The average expenditure is Rs. 36.357.

S90. Value of p =11.

S91. Mean = 53.

S92. Draw figure.

S93. $f_1 = 28$ and $f_2 = 24$.

S94. Median = 62.

S95. $f_1 = 34$ and $f_2 = 45$.

S96. Mean marks scored by the students = 448.41.

S97. The average expenditure is Rs. 266.25.

S98. 51.75 Marks.

S99. Mean = 169, Median = 170.83, Mode = 175.

S100. Mean = 62.4, Median = 61.66, Mode = 65.

S101. $f_1 = 8$ and $f_2 = 12$.

S102. Mean = 145.20, Median = 138.57, Mode = 125.