VAISHALI EDUCATION POINT
(QUALITY EDUCATION PROVIDER)

BY Prof. RAHUL MISHRA   M:9999907099,9818932244

STATISTICS

Class :- X	Subject :- Maths	Total Marks :- 165

General Instructions

QNo.	Questions

1 The mean of the distribution is 57.6 and the sum of its observations is 60, find the missing frequencies f_1 & f_2 :

Class–I	0–20	20–40	40–60	60–80	80–100	100–120
Frequency	7	f_1	12	f_2	8	5

2 Calculate the mean, the median and the mode for the following distribution :

No. of Goals	0	1	2	3	4	5
No. of matches	2	4	7	6	8	3

3 Using date given below construct the cumulative frequency table and draw the ogive. From the ogive determine the median :

Marks	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80
No of students	3	8	12	14	10	6	5	2

4 The following table shows the distribution of the heights of a group of factory worker :

Ht. in cm.	150–155	155–160	160–165	165–170	170–175	175–180	180–185
No. of workers	6	12	18	20	13	8	6

(i) Determine the cumulative frequencies (ii) Draw a cumulative curve on a graph paper use 2cm = 5cm height on one axis and 2cm = 100 workers on the other. (iii) From your graph, write down the median height in cm.

5 The following table represents the marks scored by 80 students in Mathematics unit test of 3 hours.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of Students	3	5	7	10	12	15	12	6	2	8

Change the above distribution to a more than type distribution and draw its ogive.

6 The numbers 5, 7, 10, 12, 2x-8, 2x + 10, 35, 41, 42, 50 are arranged in ascending order, if their median is 25, find x.

7 Find the mean of the following frequency distribution :

Class Interval	63–65	66–68	69–71	72-74	75–77
Frequency	4	3	7	8	3

8 The pass percentage in different subjects and the number of students who appeared in the subjects are given below :

Subject	Pass Percentage	No. of students
English	60	40
Maths	80	40
Hindi	75	23
Sanskrit	100	17
Social Sci.	71	40
General	70	38

Find the mean and weighted mean and compare them

9	Find the mean marks from the following data :

Marks	No. of students
Below 10	5
Below 20	9
Below 30	17
Below 40	29
Below 50	45
Below 60	60
Below 70	70
Below 80	78
Below 90	83
Below 100	85

10 Find the mode of the following distribution by using the formula :

$$Mode = l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h$$

Daily wages in Rs.	31 - 36	37 - 42	43 - 48	49 - 54	55 – 60	61 – 66
Frequency	6	12	20	15	9	4

11 Find the mode of the following distribution by drawing a histogram :

Class	0 - 20	20 - 40	40 - 60	60 - 80
Frequency	15	6	18	10

12 Find the mean marks of students from the following cumulative frequency table :

Marks	No. of students
0 and above	80
10 and above	77
20 and above	72
30 and above	65
40 and above	55
50 and above	43
60 and above	28
70 and above	16
80 and above	10
90 and above	8
100 and above	0

13 The mean weight of 150 students in a class is 60kg. The mean weight of the boys is 70 kg, while that of the girls is 55kg. Find the number of boys and girls in the class.

14 The average score of boys in an examination in a school is 71 and that the girls is 73. The average score of the school is 71.8. Find the ratio of the number of boys to that of the girls that appeared in the examination.

15 The average score of girls in the half-yearly examination of class X is 68 and that of the boys is 62. The average score for the whole class is 64.4. Find the percentage of girls and boys in the class.

16 A ship sails out to an island at the rate of 15 km/h and sails back to the starting point at 10 km/h. Find the average sailing speed for the whole journey.

17 In a class of 25 students, 15 are boys. The mean weight of the boys is 50 kg and that of the girls is 45kg. Find the mean weight of the class.

18 The mean of 40 numbers was found to be 38. Later on, it was detected that a number 56 was misread as 36. Find the correct mean of given numbers.

19 The sum of the deviations of a set of values x_2, x_2, ..., x_n measured from 50 is – 10 and the sum of the deviations of the values from 46 is 70. Find the value of n and the mean.

20 The mean weight of 6 boys in a group is 48 kg. The individual weights of five of them are 51 kg, 45kg, 49kg, 46kg and 44kg.

Find the weight of the sixth boy.

21 The mean of six numbers is 23. If one of the numbers is excluded, the mean of the remaining numbers is 20. Find the excluded number.

22 Computer the arithmetic mean from the following cumulative frequency table:

Marks	0 and above	10 and above	20 and above	30 and above	40 and above	50 and above
No. of students	60	54	45	37	23	0

23 Find the value of p if the mean of the following frequency distribution is 7.5.

x	3	5	7	9	11	13
f	6	8	15	p	8	4

24 Find the arithmetic mean of the following, using the direct method:

Class interval	0-40	40-80	80-120	120-160	160-200
Frequency	12	20	35	30	23

25 Find the arithmetic mean of the following, using the assumed-mean method:

Class interval	100-120	120-140	140-160	160-180	180-200
Frequency	10	20	30	15	5

26 Use the step-deviation method to find the arithmetic mean of the following:

Class interval	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Frequency	12	18	15	25	26	15	9

27 Compute the arithmetic mean from the following cumulative frequency table:

Marks obtained	Number of students
Less than 10	12
Less than 20	19
Less than 30	35
Less than 40	47
Less than 50	58
Less than 60	65
Less than 70	84
Less than 80	100

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

Class	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120	Total
Frequency	5	f_1	10	f_1	7	8	50

29 Find the missing frequencies in the following frequency distribution, whose mean is 50.

x	10	30	50	70	90	Total
f	17	f_1	32	f_2	19	120

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

31 Write the lower limit of the median class in the following frequency distribution :

Class interval	0–10	10–20	20–30	30–40	40–50
Frequency	9	12	5	16	8

32 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?

33 Find the median class of the following data:

Marks obtained	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	8	10	12	22	30	18

34 Find the mean of the following frequency distribution.

Class interval	0–20	20–40	40–60	60–80	80–100
Frequency	8	10	15	10	7

35   The following table gives the distribution of expenditure of different families on education. Find the mean expenditure on education of a family.

Expenditure (in Rs.)	Number of families
1000–1500	24
1500–2000	40
2000–2500	33
2500–3000	28
3000–3500	30
3500–4000	22
4000–4500	16
4500–5000	7

36   Find the mean of the following frequency distribution:

Classes	25–29	30–34	35–39	40–44	45–49	50–54	55–59
Frequency	14	22	16	6	5	3	4

37   If the mean of the following distribution is 54, find the value of p:

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

38   If the mean of the following distribution is 50, find the value of f_1:

Classes	0–20	20–40	40–60	60–80	80–100
Frequency	17	28	32	f_1	19

39   The mean of the following frequency distribution is 62.8. Find the missing frequency x:

Classes	0–20	20–40	40–60	60–80	80–100	100–120
Frequency	5	8	x	12	7	8

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

Classes	0–20	20–40	40–60	60–80	80–100	100–120	Total
Frequency	5	f_1	10	f_2	7	8	50

41   The mean of the following frequency table is 53. But the frequencies f_1 and f_2 in the classes 20 – 40 and 60 – 80 are missing. Find the missing frequencies.

Classes	0–20	20–40	40–60	60–80	80–100	Total
Frequency	15	f_1	21	f_2	17	100

42   The following table shows the marks obtained by 100 students of Class X in a school during a particular academic session. Find the mode of this distribution.

Marks	No. Of Students
Less than 10	7
Less than 20	21
Less than 30	34
Less than 40	46
Less than 50	66
Less than 60	77
Less than 70	92
Less than 80	100

43   If the mode of the following distribution is 57.5, find the value of x.

C.I.	30–40	40–50	50–60	60–70	70–80	80–90	90–100
f	6	10	16	x	10	5	2

44   Find the median of the following frequency distribution:

Marks	Frequency
0–100	2
100–200	5
200–300	9
300–400	12
400–500	17
500–600	20
600–700	15
700–800	9
800–900	7
900–1000	4

45   Find the median from the following data:

C.I.	100–200	200–300	300–400	400–500	500–600	600–700
f_i	11	12	10	13	20	14

46   Find the median age from the following frequency distribution:

Age group (in years)	10–12	12–14	14–16	16–18	18–20
No. of students	5	10	8	12	15

47   Calculate the median for the following data:

Marks	No. Of Students
Less than 10	0
Less than 30	10
Less than 50	25
Less than 70	43
Less than 90	65
Less than 110	87
Less than 130	96
Less than 150	100

48 The median of the following frequency distribution is 35. Find the value of x.

Class interval	0–10	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	2	3	x	6	5	3	2

49 The median of the following data is 52.5. Find the values of x and y if the total frequency is 100.

Class interval	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80	80–90	90–100
Frequency	2	5	x	12	17	20	y	9	7	4

50 If the median of the distribution is 28.5, find the value of x and y.

Class interval	0–10	10–20	20–30	30–40	40–50	50–60	Total
Frequency	5	x	20	15	y	5	60

51 The length of 40 leaves of a plant are measured correct up to the nearest millimetre and the data is as under:

Length (in mm)	118–126	126–134	134–142	142–150	150–158	158–166
Number of leaves	4	5	10	12	4	5

Find the mean and median length of the leaves.

52 100 surnames were randomly picked up from a local telephone directory and the distribution of number of letters of the English alphabet in the surnames was obtained as follows:

Number of letters	1–4	4–7	7–10	10–13	13–16	16–19
Number of surnames	6	30	40	16	4	4

Determine the median and mean number of letters in the surnames. Also find the modal size of surnames.

53 Find the mean, mode and median of the following data:

Classes	0–10	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	3	4	7	15	10	7	4

54 Find the mean, median and mode of the following data:

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

55 Find the mean, median and mode of the following data:

Classes	0–10	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	6	8	10	15	5	4	2

56

A survey regarding the heights (in cm) of 50 girls of Class X of a school was conduced and the following data was obtained:

Height in cm	120–130	130–140	140–150	150–160	160–170	Total
Number of girls	2	8	12	20	8	50

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

57 From the following frequency distribution, prepare the "less than" ogive.

Capital (in lakh Rs)	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80
No. Of companies	2	3	7	11	15	7	2	3

58 Convert the following frequency distribution by less than type cumulative frequency distribution and draw its ogive.

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

59 The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield (kg/hectare)	40–45	45–50	50–55	55–60	60–65	65–70
Number of farms	4	6	16	20	30	24

Change the distribution to a 'more than type' distribution, and draw its ogive.

60 Draw cumulative frequency curve (Ogive) by more than method from the following data.

Income (in Rs.)	0–100	100–200	200–300	300–400	400–500	500–600
No. Of persons	7	15	35	28	10	5

61 The following table gives the daily income of 50 workers of a factory. Draw both types ("less than type" and "greater than type") ogives and determine the median of the data.

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