Ravi Maths Tuition

Statistics

9th Standard

Mathematics

Multiple Choice Question 107 x 1 = 107

1) The word 'Latum' is a

(a) Latin word (b) German word (c) English word (d) Sanskrit word

2) Statistics is branch of

(a) Mathematics (b) Physics (c) Chemistry (d) Psychology

3) Facts or information collected with a definite purpose are called:

(a) Median (b) Mode (c) Data (d) Histogram

4) 'Heights of 20 students of your class' from

(a) Primary data (b) Secondary data (c) Useless data (d) Fictitious data

5) 'Number of absentees in each day in your class for a month' form

(a) Useless data (b) Fictitious data (c) Secondary data (d) Primary data

6) When the information is gathered from a source which already had the information stored, the data obtained is called

(a) Primary data (b) Secondary data (c) Useless data (d) fictitious data

7) Class mark =

(a) $\frac{lower\ limit+upper\ limit}{2}$ (b) lower limit + upper limit (c) upper limit - lower limit (d) $\frac{lower\ limit-upper\ limit}{2}$

8) The lower limit of the class 31-35 is

(a) 31 (b) 33 (c) 35 (d) 30

9) In the following frequency distribution, the lower limit of the sixth class is

MARKS	NUMBEO OF STUDENTS
0-5	3
5-10	5
10-15	8
15-20	12
20-25	7
25-30	3

(a) 20 (b) 25 (c) 30 (d) 0.

10) The upper limit of the class 36 - 40 is

(a) 36 (b) 38 (c) 40 (d) 41.

11) In the following frequency distribution, the upper limit of the fourth class is

DAILY WAGES (IN RS)	FREQUENCY
290-325	5
325-360	2
360-395	4
395-430	6
430-465	7
465-500	5

(a) Rs 430 (b) Rs 395 (c) Rs 500 (d) Rs 290.

12) In the distribution, the frequency of the class 3 - 5 is 4,8,3,6,7,2,3,5,9,4,6,5,5.

(a) 2 (b) 4 (c) 5 (d) 7.

13) In the distribution, the frequency of the class 0 - 5 is 0,3,2,5,8,10,13,5,6,6,14,0.

(a) 1 (b) 2 (c) 3 (d) 4

14) The range of the following frequency distribution is 2.7,2.7,2.8,2.1,2.4,3.2,2.1,3.1,2.8,3.2.

(a) 2.1 (b) 1.6 (c) 5.3 (d) 1.1

15) Range of the following data is:
53,36,95,73,60,42,25,78,75,62

(a) 95 (b) 25 (c) 70 (d) 60

16) The range of the data
25,10,20,22,16,6,17,12,30,32,10,19,8,11,20.is:

(a) 10 (b) 15 (c) 18 (d) 26

17) The range of the data 7,9,7,5,9,9,18,6,8,9 is:

(a) 7 (b) 8 (c) 9 (d) 13

18) If the range of a distribution is 50 and class interval is 10, then two number of classes is

(a) 6 (b) 10 (c) 5 (d) 4

19) The width of the class interval 70.5 - 75.5 is

(a) 5 (b) 2.5 (c) 0.5 (d) 10.

20) The class size and class mark respectively of te class 15 - 20 is:

(a) 175,15 (b) 15,5 (c) 5,17.5 (d) 5,50

21) The class mark of the class 130 - 150 is:

(a) 130 (b) 135 (c) 140 (d) 145

22) Class mark of a class interval 15 - 25 is:

(a) 10 (b) 20 (c) 40 (d) 5

23) The class mark of the class interval 90 - 120 is:

(a) 90 (b) 105 (c) 115 (d) 120

24) In the following frequency distribution, the number of students of age less than 25 years is

AGE (IN YEARS)	**NUMBER OF STUDENTS**
5-10	3
10-15	6
15-20	8
20-25	8
25-30	2

(a) 8 (b) 6 (c) 17 (d) 25.

25) In the following distribution, the number of students securing marks less than 10 is

MARKS OBTAINED	NUMBER OF STUDENTS
0-5	6
5-10	2
10-15	5
15-20	3
20-25	4

(a) 8 (b) 7 (c) 6 (d) 5.

26) In the following distribution, the number of schools with result more than 60% is

RESULT OF (IN PERCENT)	NUMBER OF SCHOOLS
0-20	4
20-40	7
40-60	5
60-80	3
80-100	2

(a) 2 (b) 3 (c) 5 (d) 1

27) In the following distribution, the number of students securing marks 15 or more is

MARKS OBATINED	NUMBER OF STUDENTS
0-5	6
5-10	2
10-15	5
15-20	3
20-25	4

(a) 8 (b) 7 (c) 6 (d) 5

28) In the following frequency distribution, what is the frequency of the variable 13?

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

29) In the following distribution, 10 is the frequency of the variate

X	F
12	3
13	5
14	8
15	10
16	7
17	4
18	2

(a) 15 (b) 16 (c) 13 (d) 18.

30) Two consecutive class marks of a distribution are 52 and 57. Then the class size is:

(a) 2.5 (b) 5 (c) 54.5 (d) 109

31) The class marks of a frequency distribution are 15,20,25,... The class corresponding to class mark 25 is:

(a) 17.5-22.5 (b) 20-30 (c) 22.5-27.5 (d) 22-27

32) The class marks of frequency distribution are 10,20,30,40, ... The class representing the class mark 30 is:

(a) 20-40 (b) 30-40 (c) 25-30 (d) 25-35

33) In a histogram, the heights of the rectangles are

(a) inversely proportional to the frequencies of the corresponding classes

(b) directly proportional to the frequencies of the corresponding classes

(c) directly proportional to the widths of the corresponding classes

(d) inversely proportional to the widths of the corresponding classes.

34) In case of unequal classes, the formula for reassessing the frequency of a class is reassessed frequency =

(a) $\frac{Width\ of\ the\ class\ having\ least\ width}{Width\ of\ the\ class\ under\ comsideration} \times frequency\ of\ the\ class\ under\ considertaion$

(b) $\frac{Width\ of\ the\ class\ under\ consideration}{Width\ of\ the\ class\ under\ maximum\ width} \times frequency\ of\ the\ class\ under\ considertaion$

(c) $\frac{Width\ of\ the\ class\ under\ consideration}{Width\ of\ the\ class\ under\ minimum\ width} \times frequency\ of\ the\ class\ under\ considertaion$

(d) $\frac{Width\ of\ the\ class\ under\ maximum\ width}{Width\ of\ the\ class\ under\ consideration} \times frequency\ of\ the\ class\ under\ considertaion$

35) If a frequency polygon is drawn from the following frequency distribution, then its first two points will be

MARKS (OUT OF 50)	NUMBER OF STUDENTS
0-10	8
10-20	10
20-30	6
30-40	7
40-50	10

(a) (0,0),(4,0) (b) (-5,0),(4,0) (c) (5,8),(15,10) (d) (0,0),(0,4).

36) If a frequency polygon is drawn from the following frequency distribution, then its last two points will be

MARKS (OUT OF 50)	NUMBER OF STUDENTS
0-10	8
10-20	10
20-30	6
30-40	7
40-50	10

(a) (35,7),(45,10) (b) (5,50),(50,0) (c) (50,5),(50,0) (d) (7,35),(10,45).

37) In a morning walk, I had 20 rounds of a park. During this period, I came across person A, person B, person C and person D, 11 times, 7 times. 10 times and 5 times respectively. I want to represent this data graphically, which of the following is the best representation?

(a) Bar graph (b) Histogram with unequal width (c) Histogram with equal width

(d) Frequency polygon

38) The position average is

(a) arithmetic mean (b) median (c) geometric mean (d) harmonic mean

39) The model value of a series is

(a) middle value (b) value with maximum frequency (c) value with minimum frequency

(d) limiting value.

40) The mode of the distribution 3,5,7,4,2,1,4,3,4 is

(a) 7 (b) 4 (c) 3 (d) 1.

41) The number of students of a school according to their age is as follows:

AGE (IN YEARS)	NUMBER OF STUDENTS
8	18
9	25
10	40
11	36
12	41
13	37
14	20
15	13
16	5
17	3

(a) 41 (b) 12 (c) 3 (d) 17.

42) The number of family members of 30 families of a village is according to the following table. Find their mode.

NUMBER OF FAMILY MEMBSERS	NUMBRE OF FAMILIES
2	1
3	2
4	4
5	6
6	10
7	3
8	4

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

43) The marks of some students are given below. Find the mode of marks.

MARKS	NUMBER OF STUDENTS
10	2
20	8
30	16
40	26
50	20
60	16
70	7
80	4

(a) 60 (b) 50 (c) 30 (d) 40.

44) The ages of 20 students of a class in years are as follows:

15	16	13	14	14
13	15	14	13	13
14	12	15	14	16
13	14	14	13	15

Their mode is

(a) 13 years (b) 14 years (c) 15 years (d) 16 years

45) Mode of the following score is:
14,25,14,28,18,17,18,14,23,22,14,18

(a) 18 (b) 28 (c) 14 (d) 25

46) The ages (in years) of 10 children are given below 15,15,16,16,15,14,17,16,14,16. The modal age of the children is:

(a) 4 (b) 15 (c) 16 (d) 17

47) Mode of the marks obtained by 20 students is 4,6,5,9,3,9,7,7,6,5,4,9,10,10,3,4,7,6,9,9

(a) 7 (b) 5 (c) 10 (d) 9

48) Mode of data 125,175,225,125,225,175,325,125,375,225 and 125 will be:

(a) 125 (b) 175 (c) 225 (d) 325

49) For what value of x, is the mode of the following data 9?
5,8,9,3,9,8,7,6,8,9,x,4

(a) 7 (b) 8 (c) 9 (d) 6.

50) For what value od x, is the mode of the following data 16?
13,16,16,14,16,14,13,14,13,x,14,16,18,17

(a) 13 (b) 14 (c) 15 (d) 16

51) If the mode of 4,9,5,4,9,5,4,9, and x - 10 is 9, then value of is:

(a) 4 (b) 19 (c) 1 (d) 5

52) If the mode of the given data 16,18,17,16,18,x,19,17,14 is 18, then the value of x will be:

(a) 16 (b) 17 (c) 18 (d) 19

53) Let m be the mid value and l be the upper limit of a class in a frequency distribution. The lower limit of the class is:

(a) 2m + 1 (b) 2m - 1 (c) m - 1 (d) m - 2l

54) If $\bar{x}$ is the mean of$x_1, x_2, x_3, \ldots, x_n$, then $\bar{x}$

(a) $\sum_{i=1}^{n} x_i$ (b) $\frac{1}{n}\sum_{i=1}^{n} x_i$ (c) $n\sum_{i=1}^{n} x_i$ (d) $\sum_{i=1}^{n} nx_i$

55) If $\bar{x}$ is the mean of $x_1, x_2, x_3, \ldots., x_n$, then the mean of $x_1 - k, x_2 - k, x_3 - k, \ldots., x_n - k; k \neq 0$ is

(a) 0 (b) 1 (c) $\bar{x} - k$ (d) $\bar{x} + k$

56) If the mean of 10 observations is 15, then their algebraic sum is

(a) 1.5 (b) 15 (c) 75 (d) 150.

57) If $\bar{x}$ is the mean of $x_1,x_2,x,_3,\ldots.,x_n$, then, the mean of $mx_1,mx_2,mx_3, \ldots., mx_n$ is

(a) $\sum_{i=1}^{n} mx_i D$ (b) $\sum_{i=1}^{m} mx_i$ (c) $m\bar{x}$ (d) $\frac{m}{n}\bar{x}$.

58) The mean of the data $x_1,x_2,x_3, \ldots x_n$, is 102, then mean of the data $5x_1,5x_2,5x_3, \ldots 5x_n$ is:

(a) 102 (b) 204 (c) 606 (d) 510

59) If 12 is the mean of 10 observations and 10 is added to each observation, then the new mean is:

(a) 120 (b) 13 (c) 24 (d) 22

60) The mean of 3,4,5,6,7 is

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

61) A student got respectively 85,87 and 83 marks in Mathematics, Physics, and Chemistry. The mean of his mark is

(a) 86 (b) 84 (c) 85 (d) 85.5

62) Marks of four students in statistics are 53,75,42,70. The arithmetic mean of their marks is

(a) 42 (b) 64 (c) 60 (d) 56.

63) The mean 1,2,3,4,5x is

(a) 3 (b) 5 (c) x + 2 (d) 5x + 1.

64) The mean of numbers from 1 to 20 divisible by 3 is

(a) 9 (b) 10.5 (c) 12 (d) 15.

65) Find the mean of all possible factors of 10.

(a) 4 (b) 4.5 (c) 12 (d) 15.

66) Mean of first 10 natural number is:

(a) 6.5 (b) 5.5 (c) 7.5 (d) 8.5

67) Mean of first five prime numbers is:

(a) 5.6 (b) 7.8 (c) 5.2 (d) 1.4

68) The mean of x + 1,x + 3,x + 4,x +8 is:

(a) x + 1 (b) x + 3 (c) x + 4 (d) x + 8

69) If the mean of 5,7,9,x is 9, then the value of x is

(a) 11 (b) 15 (c) 18 (d) 16.

70) If the mean of 3,4,8,5,x,3,2,1 is 4, then the value of x is

(a) 2 (b) 4 (c) 6 (d) 8

71) If the mean of 4,7,8,6,x is 6, then the value of x is

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

72) If the mean of 5,10,15,p,20,35,40 is 21. Then the value of p is

(a) 18 (b) 22 (c) 25 (d) 30

73) If the mean of 6,5+x,28,18 and 11 is 14, then the value of x is

(a) 1 (b) 2 (c) 4 (d) 3.

74) If the mean of 6,10,x and 12 is 8, then the value of x is:

(a) 5 (b) 4 (c) 3 (d) 8

75) If the mean of the data,2 x + 1,9,x -2 is 4, then the value of x is:

(a) 2 (b) 3 (c) 4 (d) 5

76) If the mean of 3,5,0,9 x,7 and 13 is 7, the value of x is:

(a) 10 (b) 11 (c) 12 (d) 8

77) The mean of prime numbers between 20 and 30 is:

(a) 21 (b) 26 (c) 25 (d) 27

78) The mean of multiples of 3 from 3 to 10 is:

(a) 5 (b) 6.5 (c) 7 (d) 6

79) The mean of perimeters of two square having sides x units and y units is:

(a) (x + y) units (b) $\left(\frac{x+y}{2}\right)$ units (c) 2(x + y) units (d) $\left(\frac{x+y}{4}\right)$ units

80) The mean of five numbers is 18. If one number is removed, then the mean becomes 16. The removed number is

(a) 22 (b) 24 (c) 25 (d) 26.

81) The mean of 13 numbers is 24. If 3 is added to each of the numbers. Then, the new mean is

(a) 21 (b) 24 (c) 27 (d) 30.

82) The mean wage of 5 employees of a school is Rs 3000. One employee gets retired and the mean wage of the remaining employee is Rs 3200. The wage of the retiring employee was

(a) Rs 2200 (b) Rs 2400 (c) Rs 2000 (d) Rs 2600.

83) The mean of 10 numbers is 16. If the one number 36 of these is changed to 26, then new mean is

(a) 15 (b) 16 (c) 10 (d) 26.

84) The mean of x_1,x_2 is 6 and mean of x_1,x_2,x_3 is 7. The value of x_3 is:

(a) 7 (b) 8 (c) 9 (d) 10

85) The median of the following series is 520,20,340,190,35,800,1210,50,80.

(a) 1210 (b) 520 (c) 190 (d) 35

86) The median of the distribution 1,3,2,5,9 is

(a) 3 (b) 4 (c) 2 (d) 20

87) The median of the data 19 25 59 48 35 31 30 32 51 is

(a) 32 (b) 31 (c) 30 (d) 25

88) The median of 1,0,1,0,2,2,2,3,3 is

(a) 0 (b) 1 (c) 2 (d) 1.5

89) Median of 78,56,22,34,45,54,39,84,54 is:

(a) 45 (b) 54 (c) 49.5 (d) 55

90) The median of first 5 odd multiples of 5 is:

(a) 15 (b) 25 (c) 35 (d) 45

91) The median of the distribution 2,3,4,7,5,1 is:

(a) 4 (b) 7 (c) 11 (d) 3.5

92) The median of the variate values 25 34 33 13 20 26 36 28 19 34 is

(a) 26 (b) 27 (c) 28 (d) 36

93) The median of the data 5,8,7,6,11,13,12,15 is

(a) 9 (b) 8.5 (c) 11 (d) 9.5

94) Median of given data is: 144,145,147,148,149,151,152,154,155,160

(a) 149 (b) 150 (c) 151 (d) 152

95) Calculate the median of the following data 6,9,10,13,14

(a) 9 (b) 19 (c) 9.5 (d) 10

96) The median of first 10 prime integers is

(a) 11 (b) 12 (c) 13 (d) none of these

97) The median of first 10 odd numbers is

(a) 5 (b) 5.5 (c) 6 (d) 6.5

98) Median of first 8 prime numbers is:

(a) 12 (b) 11 (c) 13 (d) 9

99) If the median of the following data arranged in ascending order is 18, then the value of x is 8 11 12 16 16+x 20 25 30

(a) 1 (b) 2 (c) 3 (d) 4

100) The median of the following numbers written in ascending order is 25.
6,8,11,12,2x-8,2x+10,35,41,42,50.Then the value of x is

(a) 8 (b) 10 (c) 12 (d) 6

101) In data, 10 numbers are arranged in increasing order.If 7th entry is increased by 4, then median is increased by:

(a) 0 (b) 4 (c) 5 (d) 6

102) The median of the observation 26,28,31,31,33,x,x+2,37,39,41 is 34.The value of x is:

(a) 33 (b) 33.5 (c) 34 (d) 35

103) In data of 12 members arranged in ascending order, if the 9th observation is increased by 5, then median increases by:

(a) 0 (b) 4 (c) 5 (d) 6

104) Following observations have been written in ascending order.If median of the data is 22,then value of x will be:
11,12,14,16,18,x+2,x+4,30,32,35,41

(a) 18 (b) 14 (c) 19 (d) 20

105) The sum of heights of a number of players is 745 cm and mean height of players is 149.The number of players is:

(a) 10 (b) 9 (c) 5 (d) 6

106) Median of given data is: 144,145,147,148,149,150,152,155,160

(a) 148 (b) 149 (c) 150 (d) 160

107) In the class intervals 10-20, 20-30, the number 20 is included in which of the following?

(a) 10-20 (b) 20-30 (c) both the intervals (d) none of these intervals

1 Marks 40 x 1 = 40

108) Draw a frequency polygon representing the following frequency distribution.

Class Intervals	30-34	35-39	40-44	45-49	50-54	55-59
Frequency	12	16	20	8	10	4

109) In a grouped frequency distribution, the class intervals are 1-10, 11-20, 21-30, Find the class width.

110) Find the range of the following data. 25,18,20,22,16,6,17,15,12,30,32,10,19,8, 6, 20

111) If each observation of the data is decreased by 5, then what is the effect on the mean?

112) What is the median of the numbers 4,4,5,7,6,7,7,12 and 3?

113) The class marks of a frequency distribution are 15, 20, 25, ... Find the class corresponding to the class mark 20.

114) A child says that the median of 3, 14, 18, 20 and 5 is 18. What does not the child understand about finding the median?

115) Is it correct to say that in a histogram, the area of each rectangle is proportional to the class size of the corresponding class interval? If not, correct the statement.

116) 30 children were asked about the number of hours they watched TVprograms last week. The result are recorded as under

Number of hours	0-5	5-10	10-15	15-20
Frequency	8	16	4	2

Can we say that the number of children who watched TV for 10 or more hours a week is 22? Justify your answer.

117) The mean of five numbers is 30. If one number is excluded, their mean becomes 28.What is the excluded number?

118) The mid value of a class interval is 42 and the class size is 10. What are the lower and upper limits?

119) Find the mode of the following data
10,12,15,14,10,9,8,10,15,6,10,10

120) If m is the midpoint and l is the upper-class limit of a class in a continuous frequency distribution, then find the lower class limits of the class.

121) Mean of 20 observation is 17. If 25 is subtracted from the sum of observations, then what is the remaining sum?

122) Find the median of 23,30,37,27,47,46,24,31

123) What is the mean of prime numbers between 20 and 30?

124) In a continuous frequency distribution, class mark of a class is 85 and lower limit is 83, then find its upper limit.

125) If following are the marks obtained by 5 students of a class, then find their mean.10,5,20,25,15

126) Find the mean of the following distribution.

Variable	5	6	7	8	9
Frequency	4	8	14	11	3

127) The mean of 24 numbers is 12. If 2 is added to every number, what will be the new mean?

128) The mean of 16 numbers is 50. If 5 is subtracted from each number, what will be the new mean?

129) Find the median of the following observations. 15,40,25,16,28,32,36,42,16,19,28

130) The percentage of marks obtained by students of a class in Mathematics are 65, 35, 37, 23, 0, 18, 82, 92, 72, 32, 0, 5.Find the median

131) Find the mode of the following marks (out of 10) obtained by 20 students.
4,6,5,9,3,2,7,7,6,5,4,9,10,10,3,4,7,6,9,9

132) Calculate the mean, median and mode for the following data. 23,25,28,25,16,23,17,22,25,25

133) Find the mean of first six odd numbers.

134) The number of children in 10 families of a locality are: 2,4,3,4,2,0,3,5,1,6. Find the mean number of children per family.

135) Mean of 15 observation is 23. If each observation is multiplied by 2, find new mean.

136) For the given data: 11,15, 17, y+1, 19, y-2, 3; if the mean is 14, find the value of y.

137) Find the mode of the numbers: 14,14,15,27,26,27,27,22,13

138) The points scored by a basketball team in a series of matches are as follows: 17,2,7,17,25,514,18,10. Find range.

139) Find the range of the data: 22,25,20,32,36,28,40,45,35,38

140) The range of the data is: 25,18,20,22,16,6,17,12,30,32,10,19,8,11,20 is:

141) The class-mark of the class 130-150 is

142) The marks obtained by 17 students in a mathematics test (out of 100) are given below: 48, 66, 68, 49, 91, 72, 64, 46, 90, 79, 76, 82, 65, 96, 100, 82, 100
Find the range of the data.

143) The median of the following numbers arranged in descending order is 25. Find the value of x:
40, 38, 35, 2x + 10, 2x + 1, 15, 11, 8, 5

144) If the mean of 6, x, 4, and 12 is 8, then find the value of x.

145) Find the range of the data 9, 7. 5, 7, 9, 9, 6, 18, 9 and 8.

146) Calculate the median of: 152, 155, 160, 144, 145, 148, 147, 149, 150

147) What is the median of 70, 40, 50, 100, 75, 75, 65 and 95?

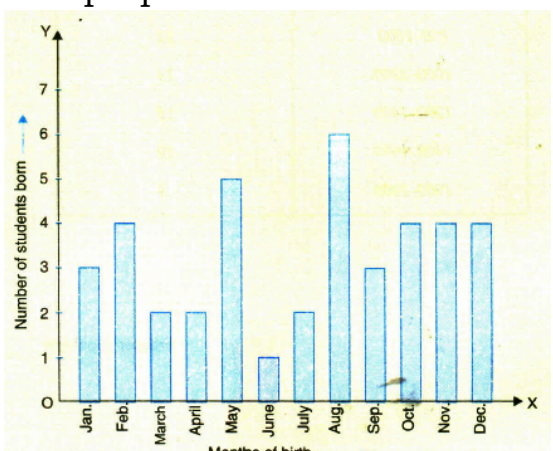
2 Marks 128 x 2 = 256

148) Three coins were tossed 30 times simultaneously. Each time, the number of heads occurring was noted drawn as follows:

0	1	2	2	1
2	3	1	1	0
1	3	1	1	2
2	0	1	2	1
3	0	0	1	1
2	3	2	2	0

Prepare a frequency distribution table for the data given above.

149) In a particular section of Class IX, 40 students were asked about the month of their birth, the following was prepared for the data so obtained.



Observe the bar graph given above and answer the following question:

(i) How many students were born in the month of November?

(ii) In which month were the maximum number of students born?

150) A family with monthly income of Rs 20,000 had planned the following expenditures per month under various heads:

HEADS	**EXPENDITURE (IN RS 1000)**
Grocery	4
Rent	5
Education of children	5
Medicine	2
Fuel	2
Entertainment	1
Miscellaneous	1

Draw a graph for the data above.

151) In a city, the following weekly observations were made in a study on the cost of living index.

COST OF LIVING INDEX	**NUMBER OF WEEKS**
140-150	5
150-160	10
460-170	20
170-180	9
180-190	6
190-200	2
Total	52

Draw a frequency polygon for the data above (without constructing a histogram).

152) Consider the marks, out of 100, obtained by 51 students of a class in a test:

MARKS	NUMBER OF STUDENTS
0-10	5
10-20	10
20-30	4
30-40	6
40-50	7
50-60	3
60-70	2
70-80	2
80-90	3
90-100	9
Total	51

Draw a frequency polygon corresponding to this frequency distribution table.

153) The heights (in cm) of students of a class are as follows:
155 160 145 149 150 147 152 144 148
Find the median of this data.

154) The points scored by a Kabaddi team in a series of matches are as follows:
17,2,7,27,15,5,14,8,10,24,48,10,8,7,1,28
Find the median of the points scored by the team.

155) Find the mode of the following marks (out of 10) obtained by 20 students:
4,6,5,9,3,2,7,7,6,5,4,9,10,10,3,4,7,6,9,9.

156) Consider a small unit of a factory where there are 5 employees: a supervisor laborers. The laborers draw a salary Rs 5,000 per month each while the supervisor gets Rs 15,000 per month. Calculate the mean, median, mode of the salaries of this unit of the factory.

157) Five people were asked about the time in a week they spend in doing social work in their community. They said 10, 7, 13, 20, and 15 hours, respectively. Find the mean (or average) time in a week devoted by them for social work.

158) Find the mean of the marks obtained by 30 students of class IX of a school. The marks are:

10	20	36	92	95	40	50	56	60	70
92	88	80	70	72	70	36	40	36	40
92	40	50	50	56	60	70	60	60	88

159) The class marks of classes in a distribution are 6,10,14,18,22,26,30. Find
(a) class size
(b) lower limit of second class
(c) upper limit of last class
(d) third class

160) In a specific year, the distribution of the ages (in years) of primary teachers of a district is given:

Age (in years)	Number of teachers
15-20	10
20-25	30
25-30	50
30-35	50
35-40	30
40-45	6
45-50	4

(i) What is the lower limit of the first class interval?
(ii) What are the limits of the fourth class interval?
(iii) What is the class mark of the class 45-50?

161) The marks obtained out of 75 by 30 students of a class in an examination are given below:
42,21,50,37,42,37,38,42,49,52,38,53,57,47,29,59,61,33,17,17,39,44,42,39,14,7,27,19,54,51
Prepare a frequency distribution table in which the size of class intervals is the same and one class intervalis 0-10.

162) The weights (in grams) of 30 apples picked at random, from a basket of oranges are given below:
45,55,30,110,75,100,40,60,65,40,100,75,60,70,70,60,95,85,80,35,45,40,50,60,65,55,45,30,90.
Prepare a frequency distribution table in which the size of class intervals is the same and one class interval is 30-40.

163) 20 children were asked about the number of hours they watched to programs in the previous week. The results were found as follows:

1	6	2	3	5	12	5	8	4	8
10	3	4	12	2	8	15	1	17	6

Make a grouped frequency distribution table for this data taking class width 5 and one of the class intervals as 5-10. How many children watched television for more than 10 hours a week?

164) The marks obtained by 40 students of class IX in an examination are given below:
12,8,18,8,6,16,12,5,
23,2,10,20,12,9,7,6,
5,3,5,13,21,13,15,20,
24,1,7,16,21,13,23,18,
7,3,18,17,16,16,23,12
Represent the data in the form of a freqency distribyuting using 15-20 (20 not included) as one of the class intervals.

165) The marks obtained by 40 students of class IX in an examination are given below:

18	16	16	12	3	15	21	7
8	12	23	9	5	20	16	3
12	5	2	7	13	24	13	18
6	23	10	6	21	1	18	17
8	2	20	5	13	7	23	16

Present the data in the form of a frequency distribution using equal class-size, one such class being 10-15 (15 not included.)

166) The blood group of 30 students are recorded as follows:

A,	B,	O,	A,	AB,	O,
A	O,	B,	A,	O,	B,
A	AB,	B,	A,	AB,	B,
A,	A,	O,	A,	AB,	B,
A,	O,	B,	A,	B,	A

Prepare a freqeuncy distribution table for the data.

167) Prepare a frequency table from the data follows:

Marks obtained	**No. of students**
More than or equal to 0	50
More than or equal to 20	48
More than or equal to 40	41
More than or equal to 60	30
More than or equal to 80	12

168) 5 people were asking about the time in a week they spend in doing social work in their community. They said 10,7,13,20 and 15 hours, respectively. Find the mean (or average) time in a week denoted by them social work

169) Find the mean of first ten multiples of 3.

170) Find the median of the following observations:
46,64,87,41,58,77,35,90,55,92,33

171) Find the median of the following data 15,28,72,56,44,32,31,43 and 51. If 32 is replaced by 23, find the new median.

172) 10 numbers 8,11,15,19,x+1,2x-13,28,31,40,41 are written in ascending order. If the median is 24, find x.

173) Find the mode of the following marks (out of 10) obtained by 20 students:

10	4	6	5	9
3	2	10	7	6
5	4	9	10	10
3	4	10	6	9

174) For a mathematics test given to 15 students, the following marks (out of 100) are recorded:

41	39	48	52	46
62	54	40	96	52
95	40	52	52	60

Find the mean and mode of the above data.

175) If the mean of the data $x_1, x_2, x_3, \ldots\ldots x_n$ is 72, find the mean of the data $3x_1, 3x_2, \ldots 3x_n$

176) Find the mode of the following data:

1	3	5	7	3
5	4	7	2	6
7	12	10	11	3
7	8	6	7	7
4	2	11	7	15

177) If the median of the data 12,24,30,35,37,40,3m,3m + 4,52,57,59,62,67,70 which is arranged in ascending order, is 47, find the value of m.

178) The mean of 100 observations is 60. If one observation of 50 is replaced by 110, then what will be the new mean?

179) The mean of 10 numbers is 50. If one more number is ordered, then the mean is 50 itself. Find the added number.

180) Mean of 50 observations was found to be 80.4. But later on it was discovered that 96 was misread as 69 at one place. Find the correct mean.

181) The mean of observations is 50. If the observation 50 is replaced by 140, what will be the new mean of the observations?

182) The mean age of 10 students of a class is 15 years. A student of age 14 years leaves the class and in his place age of their teacher is counted. Thus the mean age of group increased to 16. Find the age of the teacher.

183) The mean of five numbers is 27, If one number is excluded, their mean is 25. Find the excluded number.

184) If the mean of 16 observations is 8, and if two is added to every observation what will be the new mean.

185) Find the arithmetic mean of the following data:

X	**F**
1	5
2	9
3	12
4	17
5	14
6	10
7	6

186) Find the mean of the following distribution:

X_I	F_I
10	7
30	8
50	10
70	15
90	10

187) If the mean of the following data is 15, find p:

X	F
5	6
10	p
15	6
20	10
25	5

188) Find the mean of the following distribution:

X	F
4	5
6	10
9	10
10	7
15	8

189) If the mean of the following data is 6, find the value of p.

XI	FI
2	3
4	2
6	3
10	1
p + 5	2

190) Find the range of the following data
36,34,48,56,72,82

191) In a group, frequency data class interval are 0-20,20-40,40-60,..... then find the class width,

192) Write down the frequency of the class 20-25 in the following data.
18,19,12,13,21,27,29,22,23,26,21,17,23,24

193) Convert the given frequency distribution into a continuous grouped frequency distribution.

Class intervals	Frequency
100-103	8
104-107	8
108-111	17
112-115	10
116-119	5
120-123	6

194) The weights (in grams) of 20 mangoes picked at random from a basket are as follows
22,28,32,15,12,18,26,32,36,34,33,34,39,31,33,28, 29,30,27,22.
Construct a grouped frequency distribution table with equal classes of equal width 5 for the given data above taking the first interval as 10-15 (it is not included).

195) Consider the marks obtained (out of 30 marks) by 20 students of class IX of a school.
22,24,20,18,17,15,20,25,29,23,21,18, 12,13,19,22,24,27,13,19 Represent this data in the form of a frequency distribution table.

196) The following data gives marks out of 50, obtained by 30 students of a class in a test 40,13,38,16,27,30,7,3,24,19,39,26,7,33,19,21,13,41,17,19,17,12,7,10,1,9,21,14,47,45 Represent the above data as a grouped data in inclusive form.

197) If the mean of 6, 8, 9, x and 13 is 10, then find the value of x.

198) In a frequency distribution, the mid value of a class is 10 and the width of the class is 6. Find the low limit of the class.

199) Find median and mode of following data.
6,9,12,15,9,3,6,9,12,6,10,3,6,15,6

200) Find the median of following data.
17,23,57,46,33,29,28,30,34
If observation 23 is removed from data, then find the new median.

201) The mean height of 6 girls is 148 cm. If the individual heights of five of them are 42Cm, 154 cm, 146 cm, 145 cm and 150 cm, then find height of the sixth girl.

202) The m an of the first 8 observations is 18 and la 13 observations is 20. If the mean of all 15 observations is 19, then find the 8th observation.

203) The mean of 100 observations is 50. If one of the observation which was 50 is replaced by 150, then find the resulting mean.

204) The class marks of a frequency distribution are 47, 52, 57, 62, 67, 72, 77, 82, 87, 92, 97 and 102. Find the class size and class limits.

205) A football player scored the following number of goals in the 10 matches 1,3,2,5,8,6,1,4,7,9 Since, the number of matches is 10 (an even number). Therefore, Median = $\frac{5th\ observation+6th\ observation}{2}$ $\frac{8+6}{2} = 7$ Is it correct value and why?

206) A class consists of 50 students out of which 30 are girls. The mean of marks scored by girls in a test is 73 (out of 100) and that of boys is 71. Determine the mean score of the whole class.

207) $\bar{x}$ is the mean of $x_1, x_2, \ldots . x_n$ and $\bar{y}$ is he mean of $y_1, y_2, \ldots, y_n$, then find the value of $\bar{z}$.

208) The mean of 5 numbers is 18. If one number is excluded, then their mean is 16. Find the excluded number.

209) If $\bar{x}$ is the mean of $x_1, x_2, \ldots x_n$, then for $a \neq 0$, find the mean of $ax_1, ax_2, \ldots ax_n, \frac{x_1}{a}, \frac{x_2}{a}, \ldots, \frac{x_n}{a}$.

210) In a diagnostic test of mathematics given to students, the following marks (out of 100) are recorded 46,52,48,11,41,62,54,53,96,40,98,44 Which average will be a good representative of the above data and why?

211) The mean of 16 items was found to be 30. On rechecking, it was found that two items were wrongly taken as 22 and 18 instead of 32 and 28, respectively. Find the correct mean.

212) The following observations have been arranged in ascending order 10,11,13,14,x,17,18, 19,21,23 If the median of the data is 16m, then find the value of x.

213) The class marks of a distribution are 105, 115, 125, 135, 145, 155, 165, 175. Find the class size and class limits.

214) Find the mean of the following frequency distribution.

x	4	6	9	10	15
Frequency	5	10	10	7	8

215) The mean of 20 numbers is 18. If 3 is added to each of the first ten numbers, then find the mean of the new set of 20 numbers.

216) The average score out of 100 of boys in an examination of a school is 71 and that of the girls is 73. The average score of the school examination is 71.8. Find the ratio of the number of boys to the number of girls that appeared in the examination.

217) Mean of 20 observations is 17. If in the observations, observation 40 is replaced by 14, then find the new mean.

218) The median of following observations arranged in ascending order is 25. Find x.
11,13,15, 19,x + 2,x + 4,30, 35, 39,46

219) The mean of 12 observations is 24. If each observation is divided by 3, then find the new mean.

220) The mean of a set of observations is a. If each observation is multiplied by b and each product is decreased by c, then find the mean of new set of observations.

221) Find the mode of the following data

Item(x)	Frequency(f)
10	5
12	6
13	3
14	4
17	8

222) Calculate mean of prime numbers lying between 6 and 20.

223) There are 100 students in a class. 40 of them are girls. The average marks of the boys in science is 75% and that of the girls is 65%. Find the average marks of the class in science.

224) The mean of 40 observations of a data was calculated as 16.5. Later it was noticed that a value 20.4 was wrongly read as 16.4. Find the correct mean.

225) Find the median of the squares of the first 8 natural numbers.

226) Ten observations 6,14,15,17,x+1,2x-13,30,32,34,33 are written in ascending order. The median of data is 24. Find the value of x.

227) The median of observations 11,12,14,18,x+2,x+4,30,32,35 and 41 arranged in ascending order is 24. Find x.

228) Find the median of the squares of the first 8 natural numbers.

229) Ten observations 6,14,15,17,x+1,2x-13,30,32,34,33 are written in ascending order. The median of data is 24. Find the value of x.

230) The median of observations 11,12,14,18,x+2,x+4,30,32,35 and 41 arranged in ascending order is 24. Find x.

231) Find the mode and median of the following data: 15,3,7,27,17,5,14,8,9,12,24,27,7,27,30

232) A set of data consists of six numbers 7,8,8,9,9 and 'x'. Find the difference between the modes when x=9 and x=8.

233) Read the bar graph. Find the percentage of excess expenditure on wheat than pulses and ghee taken together.

234) The class marks of a distribution are 37, 42, 47, 52, 57. Determine the class size and the class limits of one last class mark.

235) The relative humidity (in %) of a certain city of month of 30 days was as follows:

98	98	99	90	86	95	92	96	94	95
89	92	97	93	92	95	97	93	95	97
96	92	84	90	95	98	97	96	92	89

Construct a grouped frequency distribution table with classes 84-88, 88-92 etc.

236) From the following observations:
0.03,0.05,1.04,0.08,0.05,1.03,0.03,0.04,0.07,0.05, 0.02, 1.00, 0.08
(i) Calculate the Mode
(ii) Calculate the Range

237) Find the mean of the following data.

x_i	11	12	13	14	15	16	17	18
f_i	10	1	3	4	8	10	3	1

238) Find the value of p when the mean of the following data is 21.6.

x_i	6	12	18	24	30	36
f_i	5	4	p	6	4	6

239) The following table gives a description of the marks obtained by 41 students of a class:

Marks obtained	25	15	20	30	17	22
Number of students	8	2	10	4	5	1

Find the median of marks obtained.

240) In a small unit of a factory 5 employees (a supervisor and four labourers) are working. The labourers draw a salary of Rs. 5000 per month each while the supervisor gets RS. 15,000 per month. Calculate the mean, median and mode of the salaries of the unit of the factory.

241) Find the mean of: 10, 90, 20, 80, 30 and 70.

242) Find the range and prepare a frequency table for the following observations: 4, 1, 1, 2, 3, 5, 2, 3,3,1, 2, 2, 4, 2, 5, 4, 1, 1, 3, 2

243) Make a cumulative frequency table for the following:

Class interval	**Tally marks**	**Frequency**
100-110		4
110-120		6
120-130		2
130-140		3
140-150		5
Total		20

244) Form a frequency table for the following:

Marks obtained	**Number of students**
More than 50	0
More than 40	20
More than 30	37
More than 20	44
More than 10	46
More than 0	50

245) Find the mean of the first six multiples of 6.

246) If the mean of 8, 5, 2, x, 6, 5 is 6, then find the value of x.

247) If the mean of the following data is 15 then find the value of p.

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

248) The following observations are arranged in ascending order: 26, 29, 42, 53, x, x + 2, 70, 75, 82, 93 If the median is 65, find the value of x.

249) Marks obtained by 11 students in a mathematics test (out of 100) are given below: 79, 86, 45, 54, 63, 69, 72, 93, 48, 73 and 99. What is the range of this data?

250) What is the class-mark of the class 150-170?

251) What is the class-mark of the class 90-110?

252) What is the range of the data 15, 75, 88, 90,11, 20, 15, 20, 10, 40, 78, 25, 45, 33, 62?

253) In a frequency distribution, the class mark of a class is 10. If the width of the class is 6, then what is the lower limit of the class?

254) What is the range of the data 29, 14, 27, 18, 9, 15, 45, 61?

255) What is the class-mark of the class 120-140?

256) The class-mark of a class is 10 and class width is 6. What is the upper limit of the class is:

257) In a frequency, the class width is 4 and the lower limit of the first class is 10. What is the upper limit of the sixth class?

258) The class marks of a distribution are 10, 15, 20, 25, ... 40. What is the class corresponding to 20?

259) What is the mean of first five prime numbers?

260) Find the mean of x + 77, x + 7, x + 5, x + 3 and x - 2?

261) If the mean of n observations X_1, X_2, X_3, ... X_n, is $\bar{x}$ then what is $\sum_{i=1}^{n} (x_i - \bar{x})$?

262) If each observation of the data is increased by 5, then what happens to its mean?

263) In the class intervals 40 - 50, 50 - 60, the number 50 is included in which of the following?
(a) both the intervals
(b) 40 - 50
(c) 50 - 60

264) If x be the mid-point and 1 be the upper class limit of a class in a continuous frequency distribution. What is the lower limit of the class?

265) What is the mean of first 10 natural numbers?

266) The mean of 10, 15, x, 5, 15 is 15. What. is the value of x?

267) In the frequency distribution.

Class intervals	**Frequencies**
0-10	5
10 - 20	15
20 - 30	10
30 - 40	2
40- 50	3

What is the cumulative frequency corresponding to class 40 - 50?

268) In the following frequency distribution

Class-intervals	**Frequencies**	**Cumulative frequencies**
5 - 15	8	8
15 - 25	10	18
25 - 35	x	25
35 - 45	12	37
45 - 55	5	42

What is the value of x?

269) What is the median of the data 10, 16, 7, 9, 8, 4 and 12?

270) What is the mode of the observations 11, 8, 10, 8, 15, 6, 7, 8, 12, 7 and 9?

271) What is mode of the data 14, 20, 19, 14, 15, 16, 15, 14, 15, 18, 19, 14, 15, 18, 15?

272) What is median of the following numbers: 4, 3, 4, 5, 12, 7, 7, 6, 7?

273) What is the median of the data 78, 56, 22, 34, 45, 54, 39, 68, 54, 84?

274) The width of each of five continuous classes in a frequency distribution is 5 and the lower class limit of the lowest class is 10. What is the upper class limit of the highest class?

275) If $\bar{x}$ is the mean of X_1, X_2 .... , X_n; then for a ≠ 0, what is the mean of aX_1, aX_2 ..., aX_n, $\frac{x_1}{a}$, $\frac{x_2}{a}$, ..., $\frac{x_n}{a}$?

3 Marks 78 x 3 = 234

276) Give five examples of data that you can collect from your day-to-day life.

277) Classify the data as primary or secondary data.
(i) Number of students
(ii) Number of fans un our school.
(iii) Electricity bills of our house for last two years.
(iv) Election results obtained from television or newspaper.
(v) Literacy rate figures obtained from Educational Survey.

278) The blood groups of 30 students of Class VIII are recorded as follows:
A,B,O,O,AB,O,A,O,B,A,O,B, A,O,O,
A,AB,O,A,A,O,O,AB,B,A,O,B,A,B,O.
Represent this data in the form of a frequency distribution table. Which is the most common and which is the rarest, blood group among these students.

279) The following data on the number of girls (to the nearest ten) per thousand boys in different sections of the Indian society is given below:

Section	**Number of girls per thousand boys**
Scheduled Caste (SC)	940
Scheduled Tribe (ST)	970
Non SC/ST	920
Backward districts	950
Non-backward districts	920
Rural	930
Urban	910

(i) Represent the information above by a bar graph.
(ii) In the classroom discuss what conclusion can be arrived at from the graph.

280) Given below are the seats won by different political parties in the polling outcome of a state assembly elections:

Political Party	A	B	C	D	E	F
Seat won	75	55	37	29	10	37

(i) Draw a bar graph to represent the polling results.
(ii) Which political party won the maximum number of seats?

281) The length of 40 leaves of a plant are measured a correct one millimeter, and the obtained data is represented in the following table:

Length (in mm)	**Number of leaves**
118-126	3
127-135	5
136-144	9
145-153	12
154-162	5
163-171	4
172-180	2

(i) Draw a histogram to represent the given data.
(ii) Is there any suitable graphical representation for the same data?
(iii) Is it correct to conclude that the maximum number of leaves are 153 mm long? Why?

282) The following table gives the distribution of students of two sections according to the marks obtained by them:

Section A		**Section B**	
Marks	**Freqeuncy**	**Marks**	**Freqency**
0-10	3	0-10	5
20-20	9	10-20	19
20-30	17	20-30	15
30-40	12	30-40	10
40-50	9	40-50	1

Represent the marks of the students of both the sections on the same graph by two frequency polygons. From the two polygons compare the performance of the two sections.

283) The runs scored by two teams A and B on the first60 balls in a cricket match are given below:

Number of Balls	**Team A**	**Team B**
1-6	2	5
7-12	1	6
13-18	8	2
19-24	9	10
25-30	4	5
31-46	5	6
37-42	6	3
43-48	10	4
49-54	6	8
55-60	2	10

Represent the data of both the teams on the same graph by frequency polygons.

284) A random survey of the number of children of various age groups playing in a park was found as follows:

Age (in years)	**Number of children**
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

Draw a histogram to represent the data above.

285) 100 surnames were randomly picked up from a local telephone and a frequency distribution of the number of letters in the English alphabet in the surnames was found as follows:

Number of letters	**Number of surnames**
1-4	6
4-6	30
6-8	44
8-12	16
12-20	4

(i) Draw a histogram to depict the given information.
(ii) Write the class interval in which the maximum number of surnames lie.

286) The following number of goals were scored by a term in a series of 10 matches:
2,3,4,5,0,1,3,3,4,3
Find the mean, median and mode of these scores.

287) In a Mathematics test given to 15 students, the following marks (out of 100) are recorded:
41,39,48,52,46,62,54,40,96, 52,98,40,42,52,60
Find the mean, median and mode of this data.

288) The following observations have been arranged in ascending order. If the median of the data is 63, find the value of x.
29,32,48,50,x,x+2,72,78,84,95

289) Find the mode of 14,25,14,28,18,17,18,14,23,22,14,18

290) Find the mean salary of 60 workers of a factory from the following table:

SALARY (IN RS)	NUMBER OF WORKERS
3000	16
4000	12
5000	10
6000	8
7000	6
8000	4
9000	3
1000	1
Total	60

291) Give one example of a situation in which
(i) the mean is an appropriate measure of central tendency.
(ii) the mean is not an appropriate measure of central tendency but the median is an appropriate measure of central tendency.

292) Consider the marks obtained (out of 100 marks) by 30 students of class IX of a school

10	20	36	92	95	40	50	56	60	70
92	88	80	70	72	70	36	40	36	40
92	40	50	50	56	60	70	60	60	88

Represent this data in the form of a frequency distribution table:

293) The following table gives the lifetimes of 400 neon lamps:

Lifetime (in hours)	Number of Lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

(i) Represent the given information with the help of a histogram.
(ii) How many lamps have a lifetime of more than 700 hours?

294) Find the mode of the following data:

41	39	48	52	46
62	54	40	96	52
98	40	52	60	

295) For what value of 'x' in the mode of the following data 7?
6,5,6,7,5,4,7,6,(x+1),8,7

296) If the mean of x,x +2,x +4,x +6,x + 8, is 24, find the value of x.

297) If the observations, of 6,7,x-2,x,17,20 are written in ascending order and their median is 16, find the value of 'x'. Using the value of x, also find of given numbers.

298) If the mean of five observations x,x + 2,x +4, x +6,x + 8 is 13, then find the value of x.

299) The mean of the 10 observations 15,17,23,18,17,25,p,18,20,12 is 18. Find the value of p.

300) The mean of five observations, x,x + 2,x + 4,x + 6 and x + 8 is 23. Find the mean of last four observations,.

301) Represent the following data by means of histogram.

WEEKLY WAGES (IN RS)	NO. OF WORKERS
1000-1100	5
1100-1200	7
1200-1350	6
1350-1450	2
1450-1700	10
1700-1900	6

302) Find the mean of the following data:

X	F
10	3
12	10
20	15
25	7
35	5

303) From the following observations:

(i) Calculate the mode

(ii) Calculating the range

0.03	0.05	1.04	0.08	0.05
10.3	0.03	0.04	0.07	0.05
0.02	1.00	0.08		

304) Determine the median of the observations 24,23,a,a - 1,12,16, where a is the mean of 10,20,30,40,50.

305) The following observations have been arranged in ascending order. If the median of the observations is 26, find the value of x.

17,19,20,24,x,x + 2,28,31,34,36

If each observation is increased by 2, what is the new median?

306) For the data 3,21,25,17,(x + 3),19,(x -4) if mean is 18, find the value of x and hence, find the mode of the data.

307) A cricketer has a mean score of 58 runs in nine innings. Find out how many are to be scored in the tenth innings to raise his mean score to 61.

308) The mean of 5 observations was calculated as 145, but it was later on detected that in observation was misread as 45 in place of 25. Find the correct mean of the observation.

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

41	39	48	52	41
48	36	41	37	35

310) Find the value of 3x + 1, if median of 2,3,x, x + 2,11,17 is 19 (The observation are arranged in ascending order of magnitude).

311) Thirty children were asked about the number of hours they watched to programs in the previous week. The result was as follows:

1	2	10	10	8	4
10	2	5	8	9	8
3	4	5	6	1	4
6	8	2	5	8	6
3	3	9	10	4	8

(i) Prepare a frequency table for the data given.

(ii) Find the mode of the data.

312) For a particular year, following is the distribution of ages (in hours) of primary school teachers in a particular state.

AGE (IN YEARS)	NO. OF TEACHERS
Less than 20	11
21-25	32
26-30	51
31-35	49
36-40	27
41-45	6
46-50	4

1. Determine the class limits of the fourth class.
2. What is the class size?
3. Construct a cumulative frequency table.

313) Heights in cm of 12 students are given below:

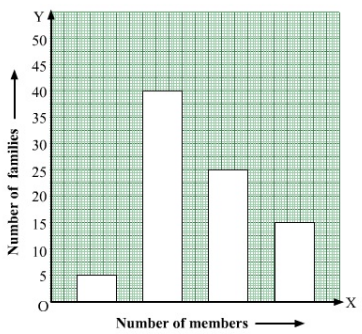
154	138	155	160	165	145
148	150	157	151	166	152

Make a frequency table taking 145-150 as first class interval.

314) If the mean of the following data is 8, find missing frequency p.

XI	FI
5	2
10	p
8	5

315) In a survey of 85 families of a colony, the number of members in each family was recorded and the data has been represented by the following bar graph



Read the bar graph carefully and answer the following questions.
(i) What information does bar graph give?
(ii) How many families have 3 members?
(iii) How many people live alone?
(iv) Which type of family is most common?

316) Find the median of ascending order 34,32, x, x - 1. 19, 15, 11, where x is the mean of 10, 20, 30, 40, 50.

317) If the mean of the observations x, x + 3, x + 5, x + 7, x + 10 is 9, then what is the mean of last three observations?

318) There are 50 numbers. Each number is subtracted from 53 and the mean of the number so obtained is found to be - 3.5. Find the mean of the given numbers.

319) Prepare a continuous grouped frequency distribution from the following data.

Mid-point	Frequency
5	4
15	8
25	13
35	12
45	6

Also, find the size of class intervals.

320) The average temperature of Monday, Tuesday and Wednesday was 40°C. The average temperature of Tuesday, Wednesday and Thursday was 41°C. If the temperature on Thursday was 42°C, then what was the temperature on Monday?

321) The following table shows the number of literate females in the age group (10-57 yr) in a village

Age group (in years)	10-17	18-25	26-33	34-41	42-49	50-57	Total
Number of females (frequency0	300	980	740	580	260	140	3000

Draw a histogram to represent the given data.

322) If the mean of the following data is 18.75, then find the value of p.

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

323) A batsman in his 12th inning makes a score of 63 runs and thereby increases his average score by 2. What is his average after the 12th inning?

324) The average temperatures of Tuesday, Wednesday and Thursday was 42°C. The average temperatures of Wednesday, Thur day and Friday was 47°C. If the temperature on Tuesday was 43°C, then find the temperature on Friday.

325) Convert the given frequency distribution into a continue-us grouped frequency distribution.

Class interval	Frequency
150-153	7
154-157	7
158-161	15
162-165	10
166-169	5
170-173	6

In which intervals would 153.5 and 157.5 be included?

326) Mean of 25 observations was found to be 78.4. But later on, it was discovered that 96 was misread as 69. Find the correct mean.

327) If the mean of the marks of five students is 33 and that of the marks of four of them is 32.5, then find the marks obtained by fifth student.

328) The mean of the following distribution is 50.

x_i	10	30	50	70	90
f_i	17	5p+3	32	7p-11	19

Find the value of p.

329) If 10, 13, 15, 18, x + 1, x + 3, 30, 32, 35, 41 are 10 observations in an ascending order with median 24, then find the value of x.

330) The mean of 10 numbers is 55. If one number is included, their mean becomes 60. Find the included number.

331) The mean of monthly salary of 12 employees of a firm is Rs.14,500. If one more person joins the firm who gets Rs.18,400 per month, than what will the mean monthly salary now.

332) The average height of 30 students is 150cm. It was later detected that one observation 165cm was wrongly copied as 135cm. Find the correct mean height.

333) Find the mean of the following distribution:

VARIABLE(X)	5	15	25	35	45
FREQUENCY(F)	6	4	9	6	5

334) Find the mean for the following data:

x	4	6	8	10	12
f	4	8	14	11	3

335) Find the mean for the weekly pocket money (in Rs.) using the following data:

POCKET MONEY (IN RS.)	55	50	49	81	48	57	65
NUMBER OF STUDENTS	8	3	10	7	3	7	2

336) The mean of n-observations is $\bar{x}$. If constant "a" is subtracted from each observation, then show that the new mean "$\bar{x} - a$"

337) Find the median of the following data: 2,12,32,17,26,39,42,12,18,32,15.

338) Find mean, median and mode of the following data: 15,17,16,14,17,16,11,15,17,14

339) The score of 15 students in an examination out of 10 marks is as below: 3,9,7,5,6,3,7,6,7,4,7,7,4,8,2
Find the mean, mode and median.

340) Find the mean, median, mode of the following data: 41,39,48,52,41,48,36,41,37,35

341) Find the median and mode of the following data: 38,40,39,40,46,41,42,52,54,52,60,62,52,98,96.

342) Find the median and mode of the following data:
24,17,13,24,26,20,26,30,8,41,24
If one 24 is replaced by 26, find new median and new mode.

343) company manufactures car tyres of a particular type. The lives (in year) of 40 such tyres are as follows:
2.6,3.0,3.7,3.2,2.2,4.1,3.5,4.5,3.5,2.3,32, 3.4,3.8,3.2, 4.6,3.7,2.5,4.4,3.4,
3.3,2.9,3.0,4.3,2.8,3.5,3.2,3.9,3.2, 32,3.1,3.7,3.4,4.6,3.8,32,2.6,2.5,42,2.9,3.6
Construct a continuous grouped frequency distribution for the above data of equal class size and with first class interval as 2 - 2.5, (2.5 is not included)

344) An insurance company selected 1600 drivers at random in a particular city to find a relationship between age and number of accidents. The data obtained are given in the following table:

Age of drivers (in years)	**No. of Accidents (in one year)**				
	0	1	2	3	4
18-25	320	125	75	45	30
25-40	400	45	50	15	10
40-55	150	85	13	8	10
Above 55	150	25	17	20	7

Find the number of drivers:
(i) in the age of 25-40 years and has more than 2 accidents in the year.
(ii) the age is above 40 years and has accidents more than 1 but less than 3

345) A family with a monthly income of Rs. 20,000 had planned the following expenditure per month under various heads.

Heads	Expenditure (in thousand rupees)
Grocery	04
Rent	05
Education	05
Medicine	02
Fuel	02
Entertainment	01
Miscellaneous	01

Draw a bar graph for the data above

346) Draw a histogram of the following data:

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	10	13	9	6	2

347) Draw a bar graph of the following data:

PRODUCT	**NUMBER OF CONSUMERS**
A	152
B	136
C	180
D	165
E	126
F	152

348) Thirty children spent about the number of hours they watched TV programs in the previous week. The result was as follow:

1	2	10	10	8	4
10	2	5	8	9	8
3	4	5	6	1	4
6	8	2	5	8	6
3	3	9	10	4	8

(i) Prepare a frequency table for the data given.
(ii) Find the mode of the data.

349) Construct a frequency table with equal class intervals from the following data on the monthly wages (in rupees) of 30 workers of a factory taking one of the class interval as 8440-8540 (8540 not included).
8740, 8780, 8760, 8740, 8450, 8200, 8440, 9080, 8880, 8840, 8340, 8140, 8660, 8960, 8400, 9100, 8460, 8880, 8540, 8140, 8760, 8300, 8350, 8660, 8950, 9120, 9100, 8320, 8150, 9080.

350) The mean of 40 numbers was found to be 35. Later on it was detected that a number 56 was misread as 16. Find the correct mean of the given numbers.

351) The mean of 72 items was found to be 63. If two of the items were misread as 27 and 9 instead of 72 and 90 respectively. Find the correct mean.

352) A train travels between two stations x and y. While going from x to y, its average speed is 72 km per hour, and while coming back from y to x, its average speed is 63 km per hour. Find the average speed of the train during the whole journey.

353) Find the mode for the following data using the relation : mode = (3 median - 2 mean)

Item (x)	**Frequency (f)**
16	1
17	1
18	3
19	4
20	1
21	2

4 Marks 54 x 4 = 216

354) The following table gives the life times of 400 neon lamps:

LIFETIME (IN YEARS)	**NUMBER OF LAMPS**
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

(i) Represent the given information with the help of a histogram.
(ii) How many lamps have a life time of more than 700 hours?

355) The class marks of a frequency distribution are 104, 114, 124, 134, 144, 154, 164. Find the class size and class intervals.

356) A part of the frequency table is given below:

Class marks of weights (in kg)	**No. of students**
33	9
38	5
43	14

Rewrite the table with class limits.

357) The following data gives the number (in thousands) of applicants registered with an Employment Exchange during 2005-2010.

Year	**No.of applications registered (in thousands)**
2005	19
2006	21
2007	23
2008	30
2009	32
2010	36

Construct a bar graph to represent the above data.

358) The marks scored by 750 students in examination are given in the form a frequency distribution table.

Marks	**No. of students**
600-640	16
640-680	45
680-720	156
720-760	284
760-800	172
800-840	59
840-880	18

Draw a histogram to represent the above data.

359) For the following data, draw a histogram.

Age (in years)	**Number of persons**
0-6	8
6-12	12
12-18	15
18-24	18
24-30	12
30-36	4

360) Draw a histogram representing the following frequency distribution:

Marks	No. of students
0-10	3
10-20	5
20-30	8
30-40	10
40-50	7
50-60	2

361) The following table gives the performance of 90 students in a mathematics test of 100 marks.

MARKS	NUMBER OF STUDENTS
0-20	07
20-30	10
30-40	10
40-50	20
50-60	20
60-70	15
70-above	08
Total	90

Represent the given information with the help of a histogram.

362) Draw a frequency polygon to represent the following information:

CLASS	FREQUENCY
25-29	5
30-34	15
35-39	23
40-44	20
45-49	10
50-54	7

363) The following table gives the distribution of 60 students according to marks obtained by

MARKS	FREQEUNCY
0-10	3
10-20	9
20-30	18
30-40	16
40-50	12
50-60	2

Draw the frequency polygon for the above data.

364) Draw a histogram and frequency polygon of the following data:

MARKS	NO.OF STUDENTS
20-30	5
30-40	12
40-50	6
50-60	20
60-70	18
70-80	10
80-90	16
90-100	3

365) Construct a histogram and frequency polygon for the following data:

MONTHLY SCHOOL FEE RS	NO.OF SCHOOLS
600-800	5
800-1000	12
1000-1200	14
1200-1400	18
1400-1600	10
1600-1800	9

366) Find the mean of the following marks of 20 students on a screening test. (out of 100)
76,44,45,87,71,72,82,83,41,32,75,32,46,78,17,70,84,12,77,74

367) Find the mean of first 10 multiples of 7?

368) Calculate mean of first 5 prime numbers.

369) The mean of 10,12,18,13,x and 17 is 15. Find the value of x.

370) The mean of 10,12,16,20,p and 26 is 17. Find the value of p.

371) Arithmetic mean of terms 21,16,24,x,29,15 is 23. Find this value of x.

372) Find the median of the following data:
95,65,75,70,75,100,50,40.

373) Find the median of first ten prime numbers.

374) The following observations have been arranged in ascending order. If the median of the data in 65, find the value of x.
32,35,50,51,x,x+2,73,76,83,90

375) Find the mode of the data 15,14,19,20,14,15,16,14,15,18,14,19,15,17,15. If last observation is changed to 14, then find the new mode.

376) Find the mean of the following distribution:

VARIABLE (X)	**FREQUENCY (F)**
4	12
5	10
6	8
7	7
8	8
9	5

377) Find the mean of each of the following distribution:

(i)

x_i	10	15	20	25	30	35	40	Total
f_i	4	6	8	18	6	5	3	50

(ii)

x_i	12	13	14	15	16	17	18	Total
f_i	1	3	4	8	10	3	1	30

(iii)

x_i	50	75	100	125	150	175	200	Total
f_i	12	18	50	70	25	15	10	200

378) Find the mean of the following
Data:

X	**F**
10	3
12	10
20	15
25	7
35	5

379) Find the mean salary of 60 workers of a factory from the table:

SALARY PER WORKER (IN RS)	**NO. OF WORKERS**
300	17
400	13
500	11
600	9
700	6
800	4

380) Find the mean of the following distribution:

X	F
4	5
6	10
9	10
10	7
15	8

381) Find the sum of the following distribution:

VARIABLE (X)	FREQUENCY (F)
5	6
15	4
25	9
35	6
45	5

382) Find the mode of the observations 17,23,25,18,17,23,19,23,17,26,23. If 4 is subtracted from each observation, What will be the mode of the new observations?

383) Find the value of p, if the mean of the following distribution is 7.5:

X	Y
3	6
5	8
7	15
9	8
11	8
13	4

384) Find the value of p is mean of following distribution is 20.

X	F
15	2
17	3
19	4
20 + p	5p
23	6

385) Find the mean $(\bar{x})$ of first ten prime numbers and hence show that $\sum_{i=1}^{10}(x_1 - \bar{x}) = 0$

386) Find the mean, median and mode of the following data:
15,17,16,14,17,16,11,15,17,14

387) Marks secured by a group of 10 students are as follows:
16,18,29,31,20,23,23,25,32,20
(i) Find the mean of the data.
(ii) If 32 is replaced by 23 in the data, find the new mean.
(iii) If each observation in the given data is increased by 5 marks, the what will be the mean?
(iv) If two students securing 16 and 32 leave the group, then find the mean of the remaining 8 students.

388) The following data have been overanged in ascending order, If the median of these data is 63, then find the value of x:
29,32,48,50,x,x + 2,72,78,84,95

389) The mean of 40 observation was 160. It was detached on rechecking that the value 165 was wrongly copied as 125. Find the correct mean.

390) The mean of 200 items was 50. Later on, it was discovered that the two items were misread as 92 and 8 instead of 192 and 88. Find the correct mean.

391) The mean of 50 observations of a data was 70.At later stage, it was noted that a value of 85 was wrongly read as 60.Find

(i) total of 50 observations.

(ii) difference between the recorded value and exact value

(iii) corrected total of 50 observations

(iv) corrected mean.

(v) Apala has the view that the corrected mean is greater than the recorded mean.Is she right?Which value is depicted by her view?

392) (i)Find the mean salary of 20 workers of a factory from the table

SALARY (IN RS)	**NUMBER OF WORKERS**
6,000	7
7,000	6
8,000	4
9,000	3
Total	**20**

(ii) What is the total number of workers?

(iii) What is the total salary of all the workers?

(iv) Write the formula used in the solution.

(v) Apala says that 3 workers get salary of Rs.9000 each.Is she right?Which value is depicted by her statement?

393) The following are the data on the speed of car passing through a particular spot on a highway.

SPEED(KM/H)	**NUMBER OF CARS**
30-40	3
40-50	6
50-60	25
60-70	65
70-80	50
80-90	28
90-100	14

(i) Draw a histogram representing the above data.

(ii) Draw a frequency polygon representing the above data

(iii) Of how many cars is the speed greater than or equal to 30 km/h?

(iv) Apala comments that the number of cars whose speed is greater than or equal to 80 km/h is 10. 1s she right? Which value is depicted by her comment?

394) The mean of the following distribution is 50.

x_i	f_i
10	17
30	5a+3
50	32
70	7a-11
90	19

395) The mean marks (out of 100) of boys and girls in an examination are 70 and 73, respectively. If the mean marks of all the students in that examination is 71, then find the ratio of the number of boys to the number of girls

396) The following table shows the interest paid by India (in Rs thousand crore) on external debts during the period 1998-99 to 2002-03.

Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Interest(in Rs thousand crore)	70	84	98	106	120

What conclusion can be derived from above data?

397) The enrollment of a school during six consecutive years was as follow

Year	2000	2001	2002	2003	2004	2005
Enrollment o school	1620	2060	2540	3250	3500	3710

(i) Find the mean of the enrollment of the school for this period.
(ii) Which value this data represent?

398) A total of 25 patients admitted to a hospital are tested for levels of blood sugar (in rng/dl) and the results obtained were as follows

87	71	83	67	85
77	69	76	65	85
85	54	70	68	80
73	78	68	85	73
81	78	81	77	75

Find mean, median and mode (in mg/dt) of the above data.

399) Following is the distribution of ages (in years) of teachers working in a primary school

Age(in years)	21-25	26-30	31-35	36-40	41-45	46-50
Number of teachers	70	110	165	320	200	135

(i) Determine the class limit of third class interval.
(ii) Determine the class size.
(iii) Determine the class marks of fifth class interval.
(iv) How many teachers are in the age group 26 to 45 yr?

400) The following table shows the life of 200 LED lamps

Life time (in hours)	Number of lamps
250-300	19
300-350	48
350-400	32
400-450	24
450-500	36
500-500	16
550-600	13
600-650	12

How many lamps have a lifetime of 600 and more?

401) The following data represents the population of girl child (out of 1000 boy child) in northern states of India that once symbolised as non-friendly to girl child.

Year	Number of girl child per 1000 biy child
1990	875
1995	900
2000	925
2005	945
2010	1000

What value does this data represent?

402) The following table gives the pocket money (in Rs) given to children per day by their Parents:

POCKET MONEY	0-10	10-20	20-30	30-40	40-50
NO. OF CHILDREN	12	23	35	20	10

Represent the data in the form of a historgram

403) Draw a histogram to represent the following grouped frequency.

AGE (IN YRS)	5-9	10-14	15-19	20-24	25-29	30-34	35-39
NO. OF PERSONS	10	28	32	48	50	35	12

Also draw frequency polygon.

404) Consider the marks out of 100, obtained by 50 students of a class in a test, given as below.

MARKS	0-20	20-40	40-60	60-80	80-100
NO. OF STUDENTS	15	10	10	11	4

Draw a frequency polygon representing the data

405) Draw a histogram and frequency polygon for the following data:

AGE (IN YRS)	**NO. OF PERSONS**
0-4	3
4-8	6
8-12	8
12-16	10
16-20	8
20-24	5
24-228	3

406) Draw a frequency polygon for the data given below, without drawing a histogram.

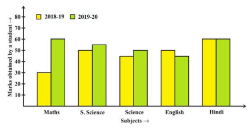
CLASSES	**FREQUENCY**
150 -160	5
160 -170	15
170 -180	20
180 -190	25
190 - 200	15
200 - 210	5

407) The runs scored by two teams A and B on the first 42 balls in a cricket match are given below. Draw the frequency polygon on the same graph paper.

NUMBER OF BALLS	**TEAM A**	**TEAM B**
0-6	2	5
6-12	1	6
12-18	8	2
18-24	9	10
24-30	4	5
30-36	5	6
36-42	6	3

Case Study Questions 5 x 4 = 20

408) The Class teacher of Class X preparing result analysis of a student. She compares the marks of a student obtained in Class IX (2018-19) and Class X (2019-20) using the double bar graph as shown below:



(i) In which subject has the performance improved the most?

(a) Maths **(b) Social Science**

(c) Science **(d) English**

(ii) In which subject has the performance deteriorated?

(a) Maths **(b) Social Science**

(c) Science **(d) English**

(iii) In which subject is the performance at par?

(a) Hindi **(b) Maths**

(c) Science **(d) English**

(iv) What is the difference in Maths Subject?

(a) 5 **(b) 30**

(c) 0 **(d) 10**

(v) What is the percentage of marks obtained by a student in Class X (2019-20)?

(a) 60% **(b) 55%**

(c) 54% **(d) 65%**

409) A Mathematics teacher asks students to collect the marks of Mathematics in Half yearly exam. She instructed to all the students to prepare frequency disctribution table using the data collected. Ram collected the following marks (out of 50) obtained in Mathematics by 60 students of Class IX

21, 10, 30, 22, 33, 5, 37, 12, 25, 42, 15, 39, 26, 32, 18, 27, 28, 19, 29, 35, 31, 24, 36, 18, 20, 38, 22, 44, 16, 24, 10, 27, 39, 28, 49, 29, 32, 23, 31, 21, 34, 22, 23, 36, 24, 36, 33, 47, 48, 50, 39, 20, 7, 16, 36, 45, 47, 30, 22, 17.

Groups	Tally Marks	Frequency
0-10	II	2
10-20	𝍸 𝍸	10
20-30	𝍸 𝍸 𝍸 𝍸 I	21
30-40	𝍸 𝍸 𝍸 IIII	19
40-50	𝍸 II	7
50-60	I	1
	Total	60

(i) How many students scored more than 20 but less than 30?

(a) 20 **(b) 21**

(c) 22 **(d) 23**

(ii) How many students scored less than 20 marks?

(a) 10 **(b) 11**

(c) 12 **(d) 14**

(iii) How many students scored more than 60% marks?

(a) 20 **(b) 25**

(c) 26 **(d) 27**

(iv) What is the class size of the classes?

(a) 10 **(b) 5**

(c) 15 **(d) 20**

(v) What is the class mark of the class interval 30 – 40?

(a) 30 **(b) 35**

(c) 40 **(d) 70**

410) A group of students decided to make a project on Statistics. They are collecting the heights (in cm) of their 51 girls of Class IX-A, B and C of their school. After collecting the data, they arranged the data in the following frequency distribution table form:

Height (in cm)	Number of girls
135 - 140	4
140 - 145	7
145 - 150	18
150 - 155	11
155 - 160	6
160 - 165	5

Based on the information, answer the following questions:

(a) The class interval with highest frequency is :

(i) 145-150 **(ii) 150 -155**

(iii) 140-145 **(iv) 155-160**

(b) What is the width of the class?

(i) 10 (ii) 15 (iii) 5 (iv) none of these

(c) How many students of the height 150 cm and below are there?

(i) 40 **(ii) 29**

(iii) 18 **(iv) 22**

(d) How many students of the height 145 cm and above are there?

(i) 40 (ii) 29 (iii) 18 (iv) 22

(e) How many students of the height more than 145 cm but less than 155 are there?

(i) 40 **(ii) 29**

(iii) 18 **(iv) 22**

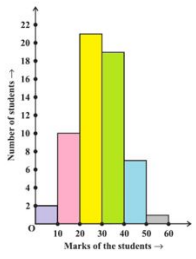
411) The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first identified in December 2019 in Wuhan, China.
During survey, the ages of 80 patients infected by COVID and admitted in the one of the City hospital were recorded and the collected data is represneted in the less than cumulative frequency distribution table.

Based on the information, answer the following questions:

Age (in yrs)	**No. of patients**
5 - 15	6
15 - 25	11
25 - 35	21
35 - 45	23
45 - 55	14
55 - 65	5

(a) The class interval with highest frequency is:
(i) 45-55 (ii) 35-45 (iii) 25-35 (iv) 15-25
(b) Which age group was affected the least?
(i) 35-45 (ii) 25-35
(iii) 55-65 (iv) 45-55
(c) Which are group was affected the most?
(i) 35-45 (ii) 25-35
(iii) 15-25 (iv) 45-55
(d) How many patients of the age 45 years and above were admitted?
(i) 61 (ii) 19 (iii) 14 (iv) 23
(e) How many patients of the age 35 years and less were admitted?
(i) 17 (ii) 38 (iii) 61 (iv) 41

412) Anil is a Mathematics teacher in Hyderabad. After Periodic test 3, he asks students to collect the Mathematics marks of all the students of Class IX- A, B and C. A student is able to collect marks from some students. Rekha scored least mark 6 in the class and Ram scored highest marks 59 in the class. He prepares the frequency distribution table using the collected marks and draws Histogram using the table as shown in adjoining figure.



(a) What is the width of the class?
(i) 10 (ii) 15 (iii) 5 (iv) none of these
(b) What is the total number of students in Histogram?
(i) 50 (ii) 60 (iii) 65 (iv) none of these
(c) How many students scored 50% and above marks?
(i) 19 (ii) 26 (iii) 27 (iv) none of these
(d) How many students scored less than 50% marks?
(i) 19 (ii) 26 (iii) 27 (iv) none of these
(e) What is the range of the collected marks?
(i) 60 (ii) 59 (iii) 53 (iv) none of these

5 Marks 25 x 5 = 125

413) A survey conducted by an organisation for the cause of illness and death among the women between the ages 15 - 44 (in years) worldwide, found the following figures (in %):

S.No.	Causes	Female fatality rate (%)
1.	Reproductive health conditions	31.8
2.	Neuropstchiatric conditions	25.4
3.	Injuries	12.4
4.	Cardiovascular conditions	4.3
5.	Respiratory conditons	4.1
6.	Other causes	22.0

(i) Represent the information given above graphically.
(ii) Which condition is the major cause of women's ill health and death worldwide?
(iii) Try to find out, with the help of your teacher, any two factors which play a major role in the cause in (ii) above being the major cause.

414) The distance (in km) of 40 engineers from their residence to their place of work were found as follows

5	3	10	20	25	11	13	7	12	31
19	10	12	17	18	11	32	17	16	2
7	9	7	8	3	5	12	15	18	3
12	14	2	9	6	15	15	7	6	12

Construct a grouped frequency distribution table with class size 5 for the data given above taking the first interval as 0-5 (5 is not included). What main features do you observe from this tabular representation?

415) The relative humidity (in %) of a certain city for a month of 30 days was as follows

98.1	98.6	99.2	90.3	86.5	95.3	92.9	96.3	94.2	95.1
89.2	92.3	97.1	93.5	92.7	95.1	97.2	93.3	95.2	97.3
96.2	92.1	84.9	90.2	95.7	98.3	97.3	96.1	92.1	89.0

(i) Construct a grouped frequency distribution table with classes 84-86, 86-88 etc.
(ii) Which month or season do you think this data is about?
(iii) What is the range of this data?

416) The heights of 50 students, measured to the nearest centimetres have been found to be as follows

161	150	154	165	168	161	154	162	150	151
162	164	171	165	158	154	156	172	160	170
153	159	161	170	162	165	166	168	165	164
154	152	153	156	158	162	160	161	173	166
161	159	162	167	168	159	158	153	154	159

(i) Represent the data given above by a grouped frequency distribution table, taking c ss intervals as 160-165, 165-170 etc.
(ii) What can you conclude about their heights from the table?

417) A study was conducted to find out the concentration of sulphur dioxide in the air in parts per million (ppm) of a certain city. The data obtained for 30 days are as follows

0.03	0.08	0.08	0.09	0.04	0.17
0.16	0.05	0.02	0.06	0.18	0.20
0.11	0.08	0.12	0.13	0.22	0.07
0.08	0.01	0.10	0.06	0.09	0.18
0.11	0.07	0.05	0.07	0.01	0.04

(i) Make a grouped frequency distribution table for this data with class intervals as 0.00-0.04,0.04-0.08 and so on.
(ii) For how many days, was the concentration of sulphur dioxide more than 0.11 parts per million (ppm)?

418) The value of π upto 50 decimal places is given below
3.14159265358979323846264338327950288419711393993751 0
(i) Make a frequency distribution of the digits from 0 to 9 after the decimal point.
(ii) What are the most and the least frequently occurring digits?

419) Thirty children were asked about the number of hours they watched TV programmes in the previous week. The results were found as follows

1	6	2	3	5	12	5	8	4	8
10	3	4	12	2	8	15	1	17	6
3	2	8	5	9	6	8	7	14	12

(i) Make a grouped frequency distribution table for this data, taking class width 5 and one of the class intervals as 5-10.

(ii) How many children watched television for 15 or more hours a week?

420) A company manufactures car batteries of a particular type. The lives (in years) of 40 such batteries were recorded as follows

2.6	3.0	3.7	3.2	2.2	4.1	3.5	4.5
3.5	2.3	3.2	3.4	3.8	3.2	4.6	3.7
2.5	4.4	3.4	3.3	2.9	3.0	4.3	2.8
3.5	3.2	3.9	3.2	3.2	3.1	3.7	3.4
4.6	3.8	3.2	2.6	3.5	4.2	2.9	3.6

Construct a grouped frequency distribution table for this data, using class intervals of size 0.5 starting from the interval 2-2.5.

421) Consider the marks obtained by 10 students in a mathematics test as given below:

55	36	95	73	60	42	25	78	75	62

422) 100 plants each were planted in 100 schools during Van Mahotsava. After one month, the number of plants that survived were recorded as

95	67	28	32	65	65	69	33	98	96
76	42	32	38	42	40	40	69	95	92
75	83	76	83	85	62	37	65	63	42
89	65	73	81	49	52	64	76	83	92
93	68	52	79	81	83	59	82	75	82
86	90	44	62	31	36	38	42	39	83
87	56	58	23	35	76	83	85	30	68
69	83	86	43	45	39	83	75	66	83
92	75	89	66	91	27	88	89	93	42
53	69	90	55	66	49	52	83	34	36

Find out 50% or more plants survived in how many schools?

423) Let us now consider the following frequency distribution table which gives the weights of 38 students of a class:

Weights (in kg)	Number of students
31 - 35	9
36 - 40	5
41 - 45	14
46 - 50	3
51 - 55	1
56 - 60	2
61 - 65	2
66 - 70	1
71 - 75	1
Total	38

Now, if two new students of weights 35.5 kg and 40.5 kg are admitted in this class, then in which interval will we include them?

424) A teacher wanted to analyse the performance of two sections of students in a mathematics test of 100 marks. Looking at their performances, she found that a few students got under 20 marks and a few got 70 marks or above. So she decided to group them into intervals of varying sizes as follows: 0 - 20, 20 - 30, . . ., 60 - 70, 70 - 100. Then she formed the following table:

Marks	Number of students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 - above	8
Total	90

Make histogram of the data.

425) Survey on the playing children of various age group is:

Age(in yrs)	No. of Children
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

Draw the histogram of above data

426) Represent the following data by means of a frequency polygon.

MARKS	**FREQUENCY**
41-45	4
45-49	10
49-53	15
53-57	18
57-61	20
61-65	12
65-69	13

427) The % of marks obtained by students in the annual examination of a class in mathematics are given below:

PERCENTAGE OF MARKS	**NO. OF STUDENTS**
0-10	8
10-30	32
30-45	18
45-50	10

(i) How many students get less than 30% of marks?

(ii) Represent the data by histogram.

(iii) Which value is depicted by a student Ram obtaining the highest marks in the interval 45-50?

428) Following are the marks obtained by 40 students of class IX in an examination:

12	8	18	16	12	6	8	5	23	12
16	23	10	2	12	20	7	9	0	5
3	16	17	18	7	3	23	18	13	10
21	7	1	24	20	15	13	21	13	5

(i) Present the data in the form of a frequency distribution using the same class size such as 0-5, 5-10, etc.

(ii) How many students obtained marks below 15?

429) The house-tax bills (in rupees) of 30 houses in a locality are given below:

876	845	844	884	866	910	854	830	895	832
876	874	908	834	896	846	814	835	912	815
874	820	888	814	840	888	876	866	910	908

Construct a frequency distribution table with class size 10.

430) Following data gives the marks (out of 50), obtained by 30 students of a class in a test:

21	13	48	1	10	8	12	17	19	17
40	12	46	37	17	27	30	6	12	23
19	39	25	5	33	19	21	12	41	9

Arrange the data using classes as 0-10, 11-20, etc.

431) If the marks of 41 students of a class are given in the following table, then find the median of marks obtained.

Marks obtained	**Frequency**
30	10
25	2
27	5
40	4
32	12
35	8

432) Prove that $\sum_{i=1}^{n}(x_i - \bar{x}) = 0$, where $\bar{x}$ is the mean of the 'n' observations X_1, X_2, X_3, X_4,.....,X_n

433) In Summer vacations, Puneet motivated 500 people for blood donation and for this social work he received cash award of RS 10,000. His father advised him to make a budget plan for spending this