

GRADE -9

LESSON : 14 STATISTICS

Objective Type Questions

I - Multiple choice questions

1. A curious 12th class student wants to know and collect the data regarding the percentage of students who get grade A1 in Mathematics during the last 10 years in Board Examinations. This collected data is known as

- a) a primary data b) a secondary data
c) raw data d) frequency data

Sol. (b) As this data will be available through some agency (here CBSE) only and not collected by the student himself.

2. In a grouped frequency distribution, the class intervals are 1 - 10, 11-20, 21-30, The class width is

- a) 5.5 b) 10 c) 9 d) 11

Sol. (b) This is a discontinuous class interval, so both 1 and 10 are included in the interval

3. A data is such that its minimum value is 86 and range is 32, then the maximum value is data is such that its minimum value is 86 and range is 32, then the maximum value is

- a) 54 b) 811 c) 118 d) 181

Sol. (c) Maximum value = Range + minimum value = 32 + 86 = 118

4. In a grouped frequency data, class intervals are 0-20, 20-40, 40-60, _____, then the class width is

- a) 10 b) 30 c) 20 d) 15

Sol. (c) Class width = Upper limit - Lower limit = 60 - 40 = 20

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

- a) 86 b) 84 c) 83 d) 87

Sol. (d) Class Mark = $\frac{\text{Upper limit} + \text{Lower limit}}{2}$

$$\Rightarrow 85 = \frac{\text{Upper limit} + 83}{2}$$

$$\Rightarrow 170 = \text{Upper limit} + 83$$

$$\Rightarrow \text{Upper limit} = 170 - 83 = 87$$

6. Class mark of a particular class is 6.5 and class size is 3, then class interval is

- a) 5 - 8 b) 6.5 - 9.5 c) 3.5 - 6.5 d) 4.25 - 7.25

Sol. (a) Class mark = 6.5, Class size = 3

$$\text{Class Mark} = \frac{\text{Upper limit} + \text{Lower limit}}{2}$$

$$6.5 = \frac{\text{Upper limit} + 83}{2}$$

$$\text{Upper limit} + \text{lower limit} = 13 \quad \dots(i)$$

$$\text{Class size} = \text{Upper limit} - \text{Lower limit}$$

$$\text{Upper limit} - \text{lower limit} = 3 \quad \dots(ii)$$

Solving (i) and (ii), we get

$$\text{Upper limit} = 8, \text{ Lower limit} = 5$$

$$\text{So, class interval} = 5 - 8$$

7. Class mark of the class 70 - 80 is

- a) 65 b) 85 c) 75 d) 150

Sol. (c) Class mark = $\frac{70+80}{2} = \frac{150}{2} = 75$

8. In a frequency distribution, the mid-value of a class is 10 and the width of the class is 6, The lower limit of the class is

- a) 6 b) 7 c) 8 d) 12

Sol. (b) Mid - value = 10

So, Upper limit = Lower limit = 2 (mid-value)

Upper limit = Lower limit = $2 \times 10 = 20$ (i)

Upper limit - Lower limit = Class width

\therefore Upper limit - Lower limit = 6(ii)

Solving (i) and (ii) we get

\therefore Upper limit = 13, Lower limit = 7

9. Which is more reliable: primary data or secondary data and why?

Sol. Primary data is more reliable and relevant because the investigator himself collected the data according to his plan and objective in view.

10. Why do we group data?

Sol. If the number of observations in the data is large and the difference between maximum and minimum value of observation is more, then we condense the data into station of data in a more meaningful way.

11. Which table gives a better picture of data: frequency distribution table for ungrouped data or frequency distribution table for grouped data?

Sol. Frequency distribution table for grouped data.

12. State any two characteristics of statistics.

Sol. (i) The data for statistics should be collected with a definite purpose in view

(ii) Statistics in an experiment should be comparable.

13. Find the upper limit of the first class interval of the following

8 - 11, 12 - 15, 16 - 19, [CBSE 2015]

Sol. Upper limit of 8 - 11, is 11

14. Find the range of the given data 25.7, 16.3, 2.8, 21.7, 24.3, 22.7 and 24.9

Sol. Range of the data = Highest value - Lowest value = 25.7 - 2.8 = 22.9

II - Multiple choice questions

1. Median of the distribution 5, 9, 8, 6, 3, 5, 7, 12, 15 is

- a) 3 b) 6 c) 5 d) 7

Sol. (d) First we must arrange the data in ascending order as 3, 5, 5, 6, 7, 8, 9, 12, 15

Number of terms = 9 (odd)

Median = $\left(\frac{9+1}{2}\right)^{th}$ term = 5^{th} term = 7

2. For 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

The mean, median and mode of this data are:

- a) 54.8, 52, 52 b) 54.5, 52, 52 c) 54.8, 50, 50 d) 54.8, 50, 52

Sol. (a) for mean:

$41 + 39 + 48 + 52 + 46 + 62 + 54 + 40$

$$\bar{x} = \frac{41+39+48+52+46+62+54+40+96+52+98+40+42+52+60}{15}$$

$$= \frac{822}{15} = 54.8$$

For median: we first arrange the data in ascending

order as 39, 40, 40, 41, 42, 46, 48, 52, 52, 52, 54, 60, 62, 96, 98

Here $n = 15$,

Median is value of the variate at $\left(\frac{n+1}{2}\right)^{th}$, i.e.,

$$\frac{15+1}{2} = 8^{th} \text{ term}$$

Median is 52

For mode: we notice from above arrangement 52 occurs maximum number of times Hence
Mode = 52 .

3. Mean of 20 observations is 15.5. litre, it was found that the observation 24 was misread as 42. The corrected mean is :

- a) 14.2 b) 14.8 c) 14.0 d) 14.6

Sol. (d) sum of 20 observations = $20 \times 15.5 = 310$

$$\text{Corrected sum} = 310 - 42 + 24 = 292$$

$$\text{Corrected mean} = \frac{292}{20} = 14.6$$

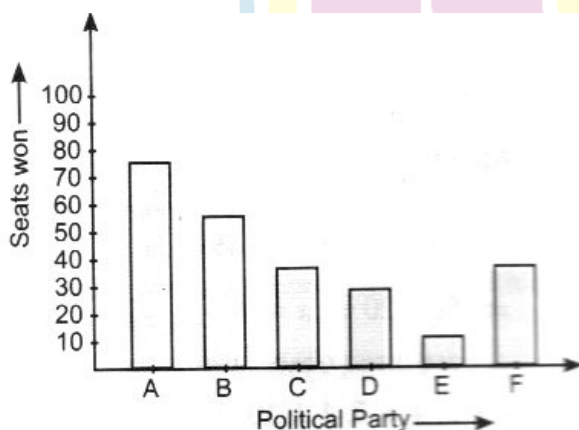
4. Given below are the seats won by different political parties in the polling outcome of state assembly election:

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

The graphical representation will be

- a) a histogram
b) a vertical bar graph or a horizontal bar graph
c) a frequency polygon curve d) none of these

Sol. (b) Vertical bar graph representing the polling results of a state assembly election.



This can also be represented by a horizontal bar graph.

5. In histogram also we use bars and values. How it is different from bar graph?

- a) No difference
- b) Histograms are same as bars but joined together
- c) we use 3 class intervals instead of variables.

Sol. (c) In Histogram, we use class intervals instead of variables.

6. A frequency polygon can be

- a) drawn using variables
- b) drawn using bar graph
- c) drawn independently and by using histogram

Sol. (c)

7. Mode of the data , 4,6,9,6,4,2,4,8,6,4,3,4,6 is

- a) 6
- b) 4
- c) 3
- d) 2

Sol. (b) 4 occurring five times [maximum times]

8. One day, I decided to sit in a shoe shop and observe, I noticed that out of shoes numbers 6,7,8, or 9, there were maximum sale from shoe number 8. Which measure of central tendency gives the average?

- a) mean
- b) median
- c) mode

Sol. (c) mode

9. If the mean of the observations

$$x, x + 3, x + 5, x + 7, x + 10$$

is 9, the mean of the last three observations is

- a) $10\frac{1}{3}$
- b) $10\frac{2}{3}$
- c) $11\frac{1}{3}$
- d) $11\frac{2}{3}$

Sol. (c) Mean = $\frac{x + x + 3 + x + 5 + x + 7 + x + 10}{5}$

$$\Rightarrow 9 = \frac{5x + 25}{5} \Rightarrow 45 = 5x + 25$$

$$\Rightarrow 5x = 20 \Rightarrow x = 4$$

∴ Last these observations are

4 + 5, 4 + 7, 4 + 10, i.e., 9, 11, 14

$$\therefore \text{Mean} = \frac{9 + 11 + 14}{3} = \frac{34}{3} = 11\frac{1}{3}$$

10. If \bar{x} represents the mean of a observations

x_1, x_2, \dots, x_n then value of $\sum_{i=1}^n (x_i - \bar{x})$ [NCERT Exemplar]

- a) -1 b) 0 c) 1 d) n-1

$$\begin{aligned} \text{Sol. (b) we have of } \sum_{i=1}^n (x_i - \bar{x}) &= \sum_{i=1}^n x_i - \sum_{i=1}^n \bar{x} \\ &= n(\bar{x}) - n(\bar{x}) = 0 \end{aligned}$$

Where $\sum_{i=1}^n x_i = n\bar{x}$

and $\sum_{i=1}^n \bar{x} = n\bar{x}$

11. If each observation of the data is increased by 5. Then their mean [NCERT Exemplar]

- a) remains the same b) becomes 5 times the original mean
c) is decreased by 5 d) is increased by 5

Sol. (d) Let number of observations are n.

So $\sum_{i=1}^n x_i$ represents sum of observations

Each observation is increased by 5

So, sum of new (n + 5) observations is

$$= \left| \sum_{i=1}^n x_i \right| + n(5) - n\bar{x} + n5 - n(\bar{x} + 5)$$

∴ Mean is increased by 5

12. The mid-value of a class interval is 42. If the class-size is 10. Find the upper and lower limits of the class [HOTS]

Sol. Mid-value of class interval is known s close-mark.

Given class - mark - 42 and class size = 10

So Lower class limit - Class mark - $\frac{1}{2} \times$ Class size

$$= 42 - \frac{1}{2} \times 10 = 37$$

$$\text{Upper class limit} = \text{Class mark} + -\frac{1}{2} \times \text{Class size}$$

$$= 42 + -\frac{1}{2} \times 10 = 47$$

13. The mean of x_1 and x_2 is 7 and mean of x_1, x_2, x_3 is 6, Find the value of x_3

Sol. We know that

$$\text{Mean} = \frac{\text{Sum of all observations}}{\text{Total number of observations}}$$

$$\text{Now } 7 = \frac{x_1 + x_2}{2} \Rightarrow x_1 + x_2 = 14 \dots\dots(i)$$

$$\text{Also, } 6 = \frac{x_1 + x_2 + x_3}{3}$$

$$\Rightarrow 6 = \frac{14 + x_3}{3} [\because \text{From (i) } x_1 + x_2 = 14]$$

$$\Rightarrow 14 + x_3 = 18$$

$$\Rightarrow x_3 = 18 - 14 = 4$$

14. Find the mean of the factors of 24

[CBSE 2012]

Sol. Various factors of 24 = 1, 2, 3, 4, 6, 8, 12 and 24

$$\text{Mean } \bar{x} = \frac{\text{Sum of all observations}}{\text{Total number of observations}}$$

$$= \frac{1+2+3+4+5+6+8+12+24}{8}$$

$$= \frac{60}{8} - \frac{15}{2} = 7.5$$

15. Find the mean of first six odd numbers

[CBSE 2016]

Sol. First six odd numbers are 1, 3, 5, 7, 9, and 11

$$\therefore \text{Mean } (\bar{x}) = \frac{1+3+5+7+9+11}{6}$$

$$= \frac{36}{6} = 6$$

16. Find the mean of prime numbers between 30 and 40.

Sol. Prime numbers between 30 and 40 are 31 and 37 (only two)

$$\therefore \text{Mean } (\bar{x}) = \frac{31+37}{2}$$

$$= \frac{68}{2} = 34$$

17. The mean of the set of numbers 6,3,x, 4,3,5 and y is given as 5. What is the value of $x + y$? [CBSE 2016]

Sol. Total number of observations - 7

Mean of the data

$$\bar{x} = \frac{x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7}{7}$$

$$\Rightarrow 5 = \frac{6 + 3 + x + 4 + 3 + 5 + y}{7}$$

$$\Rightarrow 21 + x + y = 35$$

$$\Rightarrow x + y = 35 - 21 = 14$$

18. Calculate the median of the given data 144, 145, 147, 148, 149, 150, 152, 155, 160

[CBSE 2015]

Sol. Here, number of observations (n) = 9 (odd)

$$\therefore \text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ term}$$

$$= \left(\frac{9+1}{2}\right)^{\text{th}} \text{ observation}$$

$$= 5^{\text{th}} \text{ observation} = 149$$

19. If the median of the observations: $x, x + 3, x + 5, x + 7, x + 10$, is 9 find the last observation.

Sol. Total number of observations.

$$n = 5 \text{ (an odd number)}$$

$$\therefore \text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ observation}$$

$$\Rightarrow 9 = 3^{\text{rd}} \text{ observation} = x + 5$$

$$\Rightarrow x = 9 - 5 = 4$$

$$\text{So the last observation} = x + 10 = 4 + 10 = 14$$

20. The age (in years) of 12 persons are given below; 42,48,48,50,56,43,47,56,60,65,56,65
Find the mode. [CBSE 2016]

Sol. On arranging the data in ascending order. We get

42,43,47,48,48,50,56,56,56,60,65,65

Age 56 years occurs 3 times in the data and has maximum frequency amongs other.

\therefore Mode of age = 56 years

21. Find the mode of the following data

15,14,19,20,14,15,16,14,15,18,14,19,15,17,15

Sol. Making a frequency table, we have

x_1	14	15	16	17	18	19	20
f_1	4	5	1	1	1	2	1

We find that observation 15 has the maximum frequency (5)

\therefore Mode = 15

I - Short answer type questions

1. The marks obtained by 20 students of class IX in an examination are given below:

18,8,12,6,9,16,13,5,16,15,3,1,13

Present the data in the form of a frequency distribution table using the equal class interval, one such class being 15 – 20 [CBSE 2014]

Sol. Required frequency distribution table is shown below:

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Mark obtained by students	Tally Marks	Frequency (Number of Students)
0 - 5		2
5 - 10		6
10 - 15		5
15 - 20		4
20 - 25		3
Total		30

2. The weights [in kilograms] of 25 students are given as follows:

35,38,36,37,38,35,37,36,35,36,36,37,37,35,38,36,35,36,37,37,38,36,38,37

Complete the following frequency table:

Weights	35	36	37	38
Frequency	--	--	--	--

Sol.

Weights (in Kg)	35	36	37	38
Frequency	5	7	7	6

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3. Given below the ages (in years) of 30 students of a class VIIIth in a school, Prepare a discrete frequency distribution table.

Sol

Age of students (in years)	Tally Marks	Frequency (Number of Students)
14		4
15		5
16		6
17		4
18		3
20		4
22		4
Total		30

II - Short answer type questions

1. The class marks of the distribution are 37,42,47,52, and 57. Determine the class-size and the class limits of the last class mark. [CBSE 2013]

Sol. Class size = Difference between class marks of two adjacent classes

$$= 42 - 37 = 5$$

Therefore, we need classes of size 5 with class marks as 37,42,47,52,57

Now lower class limit of the last class

$$= 57 - \frac{1}{2} \times 5$$

$$= 57 - 2.5 = 54.5$$

$$\text{Upper class limit of the last class} = 57 - \frac{1}{2} \times 5 = 59.5$$

\therefore Class limits of the last class mark are 54.5 – 59.5

2. The mean of the observations x , $2x + 1$, $2x + 5$ and $2x + 9$ is 30. What is the mean of first three observations?

$$\text{Sol : Mean } \bar{x} = \frac{x + (2x+1) + (2x+5) + (2x+9)}{4} = 30$$

$$\therefore 7x + 15 = 120$$

$$\Rightarrow 7x = 120 - 15 = 105$$

$$\Rightarrow x = \frac{105}{7} = 15$$

So the first three observations are 15, 31 and 35.

$$\text{Therefore their mean} = \frac{15+31+35}{3} = \frac{81}{3} = 27$$

3. Find the mean of the first 8 prime numbers [CBSE 2015]

Sol. First eight prime numbers are 2,3,5,7,11,13,17 and 19

$$\therefore \text{mean} = \frac{2+3+5+7+11+13+17+19}{8}$$

$$= \frac{77}{8} = 9.625$$

4. The following observations have been arranged in ascending order. If the median of the data is 23.5, find the value of x

$$12, 16, 17, 19, x, x + 3, 27, 37, 38, 40 \quad [\text{CBSE 2012}]$$

Sol. Here number of observations (n) = 10 (even)

$$\therefore \text{Median} = \frac{1}{2} \left[\left(\frac{n}{2} \right)^{\text{th}} \text{ term} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \text{ term} \right]$$

$$= \frac{1}{2} [5^{\text{th}} \text{ term} + 6^{\text{th}} \text{ term}]$$

$$23.5 = \frac{1}{2} [x + x + 3]$$

$$\Rightarrow 2x + 3 = 47$$

$$\Rightarrow 2x = 47 - 3 = 44$$

$$\Rightarrow x = 22$$

5. Find the mode of the following marks (out of 10) obtained by 23 students

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

Sol. Arranging the data in ascending order, we have

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

Here the observation 10 has the maximum frequency 5

\therefore Mode = 10

6. For what value of 'x' the mode of the following data is 7?

3,5,6,7,5,4,7,5,6, (x+1),8,7 [[CBSE 2013]

Sol. Arranging the data in ascending order, we have 3,4,5,5,5,6,6,7,7,7,(x+1),8

Since mode of the given data is 7, so it should have the maximum frequency it means

$$x + 1 = 7 \Rightarrow x = 6$$

III - Short answer type questions

1. Make a frequency distribution table of the following marks scored by 20 students of a class, where class intervals are 4-7, 8-11 and so on:

5,11,6,8,10,20,23,14,19,22,7,11, 19,9,12,26,24,14,7,8

Sol.

Marks scored	Tally Marks	Frequency (Number of Students)
4 - 7		4
8 - 11	 	7
12 - 15		3
16 - 19		1
20 - 23		3
24 - 27		2
Total		20

2. The electricity bill (in rupees) of 25 hours in a locality are given below construct a frequency distribution table with a class size of 75.

170,212,252,225,310,712,415,430,320,328,194,197,235,318,412,535,604,726,
375,410,318, 405, 469,373,414.

Sol. The minimum and maximum value on the data is 170 and 726.

\therefore Range - 726 - 170 = 556

Class size = 75

\therefore Number of classes - $\frac{556}{75} = 7.4 \sim 8$

The classes, therefore, are 150 -225, 225-300, 300-375 and so on.

We therefore, construct the frequency distribution table as follows.

Electricity Bill (in Rupees)	Tally Marks	Frequency
150 - 225		4
225 - 300		3
300 - 375	 	6
375 - 450	 	7
450 - 525		1
525 - 600		1
600 - 675		1
675 - 750		2
Total		25

3. The marks obtained by 40 students of class IX in a mathematics test are given below

18, 55, 68, 79, 85, 43, 29, 68, 54, 73, 47, 35, 72, 64, 95, 44, 50, 77, 64, 35, 79, 52, 45, 54, 70, 83, 62, 64, 72, 92, 84, 76, 63, 43, 54, 38, 73, 68, 52, 54.

Sol. The minimum and maximum marks in the given data are 18 and 95.

$\therefore \text{Range} = 95 - 18 = 77$

It is given that class size is 10. So

$$\text{Number of classes} = \frac{\text{Range}}{\text{Class size}} = \frac{77}{10} = 7.7 = 8$$

So, we should have 7 classes each of size 10. According to minimum and maximum value. The classes should be 18-28, 28-38, 38-48 and so on. We, therefore, construct the frequency distribution table as follows.

Marks obtained	Tally Marks	Frequency [Number of Students]
18 - 28		4
28 - 38		3
38 - 48		6
48 - 58		7
58 - 68		1
68 - 78		1
78 - 88		1
88 - 98		2
Total		25

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IV - Short answer type questions

1. 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. If in each observation a constant value 'k' is added, how is the mean affected? [CBSE 2012]

Sol. Given Mean of 50 observations = 80.4

$$\therefore \text{Sum of 50 observations} = 50 \times 80.4 = 4020$$

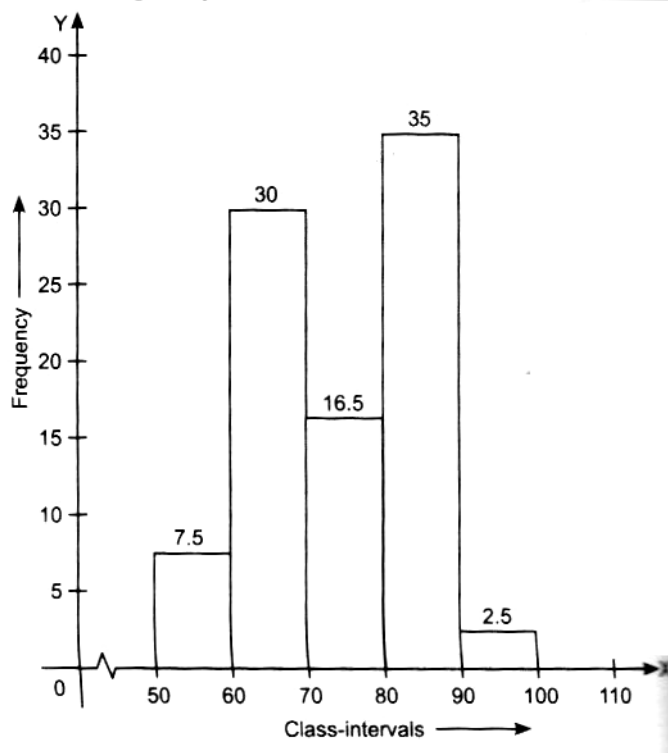
But later, it was discovered that 96 was misread as 69 at one place.

$$\therefore \text{Correct mean} = \frac{4020 - 69 + 96}{50} = \frac{4047}{50} = 80.94$$

Hence the correct mean = 80.94

* If 'k' is added to each observation, then new mean is $80.94 + k$

2. Using the given histogram, prepare a grouped frequency distribution table [CBSE 2014]



Sol: The constructed grouped frequency distribution table is shown below

Class interval	Frequency
50 - 60	7.5
60 - 70	30
70 - 80	16.5
80 - 90	35
90 - 100	2.5

3. The marks of 15 students in an examination out of 10 marks is as follows

3,9,7,5,6,3,7,6,7,4,7,7,4,8,2

Find the mean, mode and median.

Sol. Arranging the given data in ascending order, we have

2,3,3,4,4,5,6,6,7,7,7,7,7,8,9,

Therefore

$$\begin{aligned}
 \text{(i) Mean } \bar{x} &= \frac{1}{N} \sum x_1 = \frac{1}{15} [\text{sum of all observations}] \\
 &= \frac{1}{15} \times 86 = 5.67
 \end{aligned}$$

(ii) Here, the observation 7 has maximum frequency 5.

(iii) Here, number of observations (n) = 15 (odd)

$$\begin{aligned}
 \therefore \text{Median} &= \left(\frac{n+1}{2} \right)^{\text{th}} \text{ observation} \\
 &= 8^{\text{th}} \text{ observation} = 6
 \end{aligned}$$

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4. Draw a histogram for the following marks obtained [out of 100 marks] by class of 80 students [CBSE 2016]

Marks	Number of Students
10 - 20	18
20 - 30	10
30 - 50	15
50 - 60	7
60 - 80	4

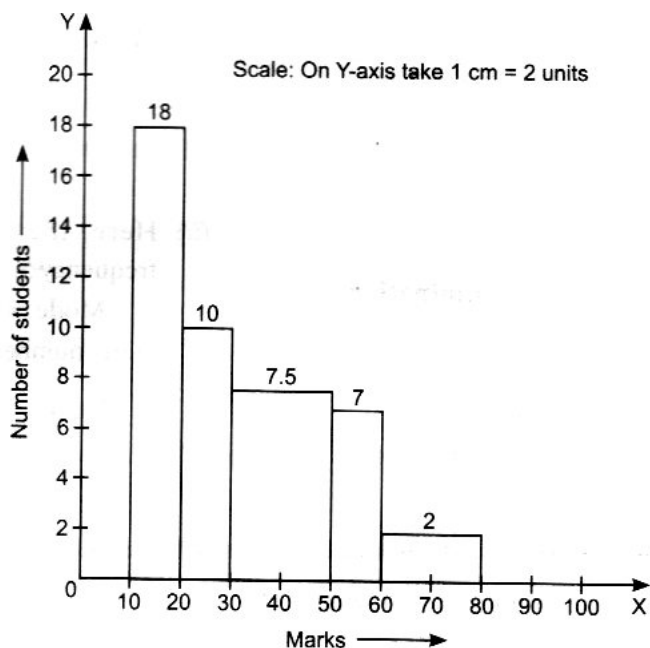
Sol. We observed that the class size are varying in frequency distribution table with minimum class size = $20 - 10 = 10$ By using formula

$$\text{Adjusted frequency of a class} = \frac{\text{Minimum class size}}{\text{Class size of this class}} \times \text{frequency}$$

Accordingly the modified frequency distribution table is given below

Marks	Number of students (frequency)	Width	Length of the rectangle (Adjusted frequency)
10 - 20	18	10	$\frac{10}{10} \times 18 = 18$
20 - 30	10	10	$\frac{10}{10} \times 10 = 10$
30 - 50	15	20	$\frac{10}{20} \times 15 = 7.5$
50 - 60	7	10	$\frac{10}{10} \times 7 = 7$
60 - 80	4	20	$\frac{10}{20} \times 4 = 2$

Therefore, histogram ,for the above table is shown below:



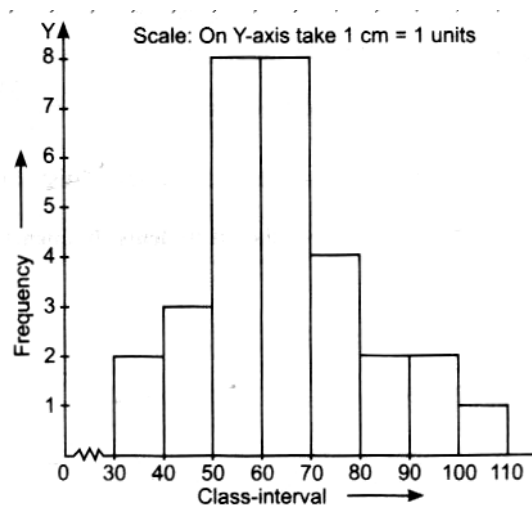
I - Long answer type questions

1. Below are the marks obtained by 30 students of a class in maths test out of 100. Make a frequency distribution table for this data with class interval of size 10 and histogram to represent the dat.

55,61, 46, 100, 75, 90, 77, 60,48, 58, 64, 59, 60, 78, 55, 88, 60, 78, 55, 88, 60, 37, 58, 84, 62, 44, 52, 50, 56, 98, 67, 70, 69, 68

Sol. Marks obtained by 30 students are 55,61, 46, 100, 75, 90, 77, 60,48, 58, 64, 59, 60, 78, 55, 88, 60, 78, 55, 88, 60, 37, 58, 84, 62, 44, 52, 50, 56, 98, 67, 70, 69, 68

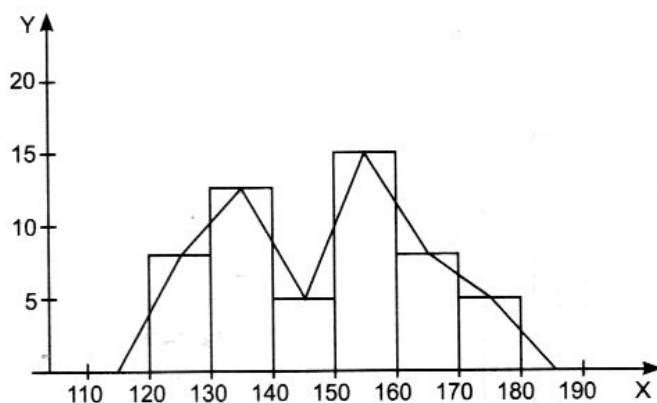
Class Interval	Tally Marks	Frequency
30 - 40		2
40 - 50		3
50 - 60		8
60 - 70		8
70 - 80		4
80 - 90		2
90 - 100		2
100 - 100		1
Total		30



2. In a city, the following weekly instructions are made in a study on cost of living index. Draw a histogram and frequency polygon for the data.

Cost of living index	Number of weeks
120 - 130	8
130 - 140	12
140 - 150	4
150 - 160	16
160 - 170	8
170 - 180	4

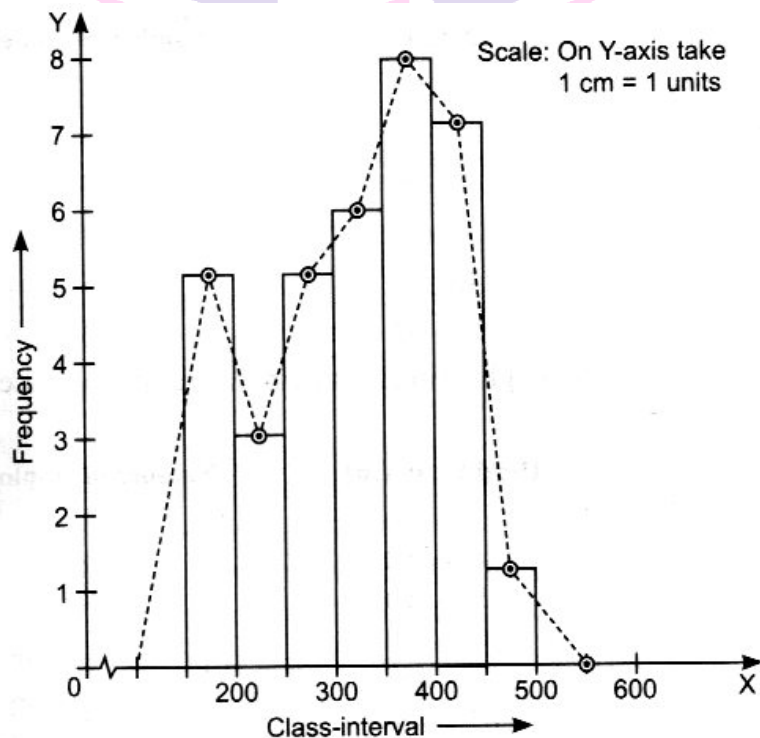
Sol.



3. Draw a histogram and frequency polygon on the same graph for the following data

Class Interval	Frequency
150 - 200	5
200 - 250	3
250 - 300	5
300 - 350	6
350 - 400	8
400 - 450	7
450 - 500	1

Sol.

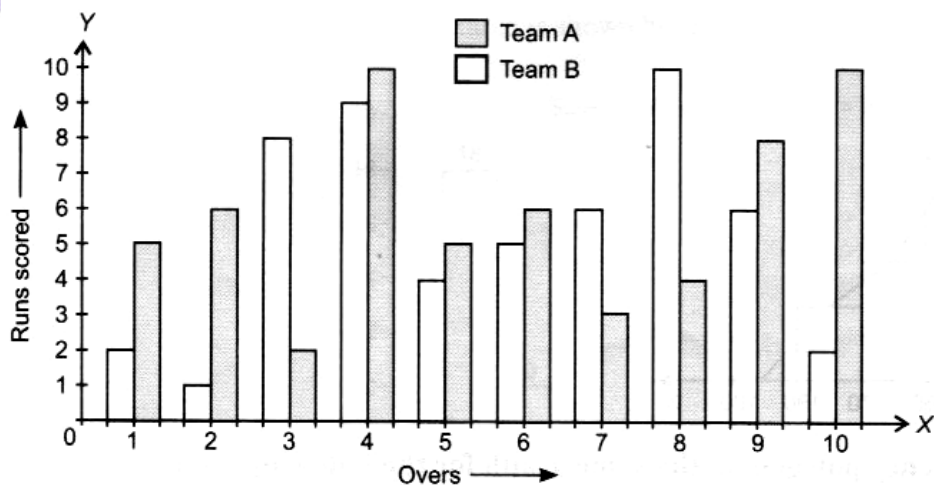


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4. Following are the runs scored by two teams A and B in a 10 over match. Represent the data graphically on the same graph.

Overs	Team A	Team B
1	2	5
2	1	6
3	8	2
4	9	10
5	4	5
6	5	6
7	6	3
8	10	4
9	4	8
10	2	10

Sol.



Next Generation School