

14. Statistics

Q 1 Define array or arrayed data.

Mark (1)

Q 2 Define frequency.

Mark (1)

Q 3 Write the relation between class mark, lower limit and upper limit of a class interval.

Mark (1)

Q 4 Define primary data.

Marks (2)

Q 5 Define secondary data. How it is differ from the primary data?

Marks (2)

Q 6 Find the mode of the following data :

Marks	Number of students
48	4
49	10
50	12
51	10
52	10

How many students are there whose marks are less than the modal value?

Marks (2)

Q 7 Following data represents the favourite fruit liked by 20 children.



M



G



A



P

P G A M M P A M G M A M M M M M A A P G.

Make a frequency table to find how many more children chose apple as their favourite fruit than pomegranate. Marks (2)

Q 8 Make a bar graph of the given data.

Instrument	Frequency
clarinet	11
flute	18
trumpet	7
violin	5

Marks (2)

Q 9 Following frequency table represents the number of students in each section of class 9th of ABC school. Find the mean number of students per sections.

Number of Student Per Section	
Section A	20
Section B	18
Section C	25
Section D	22
Section E	20

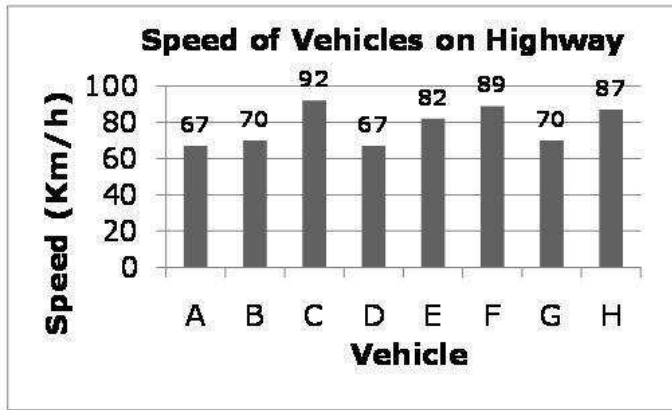
Marks (2)

Q 10 The table below shows the age of seven students participating in a music recital. Find the median and mode of the data.

Age (years)
12 10 9 10 11 8 13

Marks (2)

Q 11 Find the median and mode of the speeds displayed in the graph.



Marks (2)

Q 12 Make the frequency polygon of the given data.

Class-Intervals	Frequency
0 – 10	9
10 – 20	14
20 – 30	8
30 – 40	10
40 – 50	9

Marks (2)

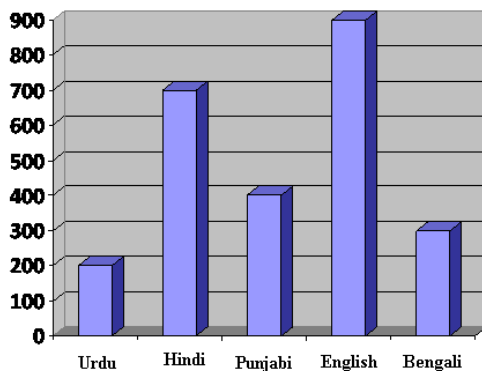
Q 13 The weights of new born babies (in kg) in a hospital on a particular day are as follows:

2.3, 2.2, 2.1, 2.7, 2.6, 3.0, 2.5, 2.9, 2.8, 3.1, 2.5, 2.8, 2.7, 2.9, 2.4

- Determine the range.
- How many babies have weight below 2.5 kg.
- How many babies have weight more than 2.8 kg. Marks (3)

Q 14 The class- marks of a distribution are 26,31,36,41,46,51,56,61,66,71. Find the true class limits. Marks (3)

Q 15 The bar graph shown in figure represents the circulation of newspaper in 5 languages. Study the bar graph and answer the following questions:



- What is the total number of newspapers published in Hindi, English, Urdu, Punjabi and Bengali?

(ii) State the language in which the largest number of news papers is published.

(iii) State the language in which the number of newspapers published is minimum.

Marks (3)

Q 16 Prepare a frequency distribution from the following data by taking the class intervals.

Mid points	Frequency
5	3
15	9
25	15
35	10
45	6
55	4
Total = 47	

Marks (3)

Q 17 Mean of 18 numbers is 57. If 9 is added to each number, find the new mean.

Marks (3)

Q 18 Prove that the sum of the deviations of individual observations from their mean is zero.

Marks (3)

Q 19 The median of the following observation arranged in ascending order is 22. Find x.

8, 11, 13, 15, x+1, x+3, 30, 35, 40, 43

Marks (3)

Q 20 1. If the mean of the following data is 20.2, find the value of p:

X	10	15	20	25	30
f	6	8	p	10	6

Marks (4)

Q 21 The water bills of 32 houses in a colony for a period is given below :

56, 43, 32, 38, 56, 22, 68, 85, 52, 47, 35, 58, 63, 74, 27, 84, 69, 35, 44, 75, 55, 30, 54, 65, 45, 67, 95, 72, 43, 65, 35, 59 .

Tabulate the data and present the data as a cumulative frequency table using 70-79 as one of the class intervals.

Marks (4)

Q 22 Construct a frequency polygon for the following data:

Age (in years)	Frequency
0-2	4
2-4	2
4-6	12
6-8	18
8-10	25

Marks (4)

Q 23 The population of a state in different census years is as given below:

Census year	1981	1982	1983	1984	1985
Population in Lakhs	30	50	70	110	150

Represent the above information with the help of bar graph. Marks (4)

Q 24 The average marks of boys in an examination are 65 and that of girls is 74. If the average of marks of all candidates in that examination is 70, find the ratio of the number of boys to the number of girls that appeared in the examination.

Marks (4)

Q 25 1. The marks obtained (out of 100) by a class of 80 students are given below:

Marks	Number of students
10-20	6
20-30	17
30-50	15
50-70	16
70-100	26

Construct a histogram to represent the data above.

Marks (4)

Q 26 1. Draw a histogram for the following distribution:

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

Marks (4)

Most Important Questions

Q 1 List the different types of statistical data.

Q 2 List the different types of frequency distribution.

Q 3 List the different ways for the presentation of raw data.

Q 4 Given below are the ages of 25 students of class IX in a school. Prepare a discrete frequency distribution.

15, 16, 16, 14, 17, 17, 16, 15, 15, 16, 16, 17, 15, 16, 16, 14, 16, 15, 14, 15, 16, 16, 15, 14, 15.

Q 5 What is data? Explain the types of statistical data?

Q 6 The class marks of a distribution are 26, 31, 36, 41, 46, 51, 56, 61, 66, 71. Determine the true class limits.

Q 7 Form a grouped frequency distribution from the following data by inclusive method taking 4 as the magnitude of class intervals.

31, 23, 19, 29, 22, 20, 16, 10, 13, 34, 38, 33, 28, 21, 15,

18, 36, 24, 18, 15, 12, 30, 27, 23, 20, 17, 14, 32, 26, 25,

18, 29, 24, 19, 16, 11, 22, 15, 17, 10.

Q 8 The marks obtained by 40 students of Class IX in an examination are given below :

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

Present the data in the form of a frequency distribution using the same class size, one such class being 20-25 (where 25 is not included).

Q 9 The class marks of a distribution are :

47, 52, 57, 62, 67, 72, 77, 82, 87, 92, 97, 102.

Determine the class size, the class limits and the true class limits.

Q 10 100 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

Represent the above data in a frequency distribution table.

Q 11 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

Construct a frequency distribution table.

Q 12 For the following data of daily wages(in rupees) received by 30 labourers in a certain factory, construct a grouped frequency distribution table by dividing the range into class intervals of equal width, each corresponding to 2 rupees, in such a way that the mid-value of the first class interval corresponds to 12 rupees.

14, 16, 16, 14, 22, 13, 15, 24, 12, 23, 14, 20, 17, 21, 22, 18, 18, 19, 20, 17, 16, 15, 11, 12, 21, 20, 17, 18, 19, 23.

Q 13 Form a discrete frequency distribution from the following scores :

15, 18, 16, 20, 25, 24, 25, 20, 16, 15, 18, 18, 16, 24, 15, 20, 28, 30, 27, 16, 24, 25, 20, 18, 28, 27, 25, 24, 24, 18, 18, 25, 20, 16, 15, 20, 27, 28, 29, 16.

Q 14 The weights in grams of 50 oranges picked at random from a consignment are as follows :

131, 113, 82, 75, 204, 81, 84, 118, 104, 110, 80, 107, 111, 141, 136, 123, 90, 78, 90, 115, 110, 98, 106, 99, 107, 84, 76, 186, 82, 100, 109, 128, 115, 107, 115, 119, 93, 187, 139, 129, 130, 68, 195, 123, 125, 111, 92, 86, 70, 126.

Form the grouped frequency table by dividing the variable range into intervals of equal width, each corresponding to 20 gms in such a way that the mid-value of the first class corresponds to 70 gms.

Q 15 The marks obtained by 35 students in an examination are given below:

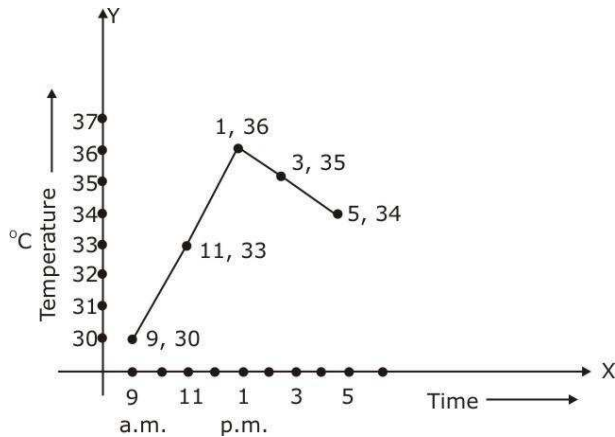
370, 290, 318, 175, 170, 410, 378, 405, 380, 375, 315, 305, 325, 275, 241, 288, 261, 355, 402, 380, 178, 253, 428, 240, 210, 175, 154, 405, 380, 370, 306, 460, 328, 440, 425.

Form a cumulative frequency table with class intervals of length 50.

Q 16 List the different ways for representing data graphically.

Q 17 What is a histogram?

Q 18 From the graph given below, read the temperature at 11 a.m. and 4 p.m.



Q 19 The following table gives the number of vehicles passing through a busy crossing in Noida in different time intervals on a particular day.

Time Interval	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15
No. of vehicles	300	400	350	250	200	150	100

Represent the above data by a bar graph.

Q 20 The population of a state in different census year is as given below:

Census year	1981	1982	1983	1984	1985
Population in Lakhs	30	50	70	110	150

Represent the above information with the help of a histogram.

Q 21 Number of children in seven different classes are given below:

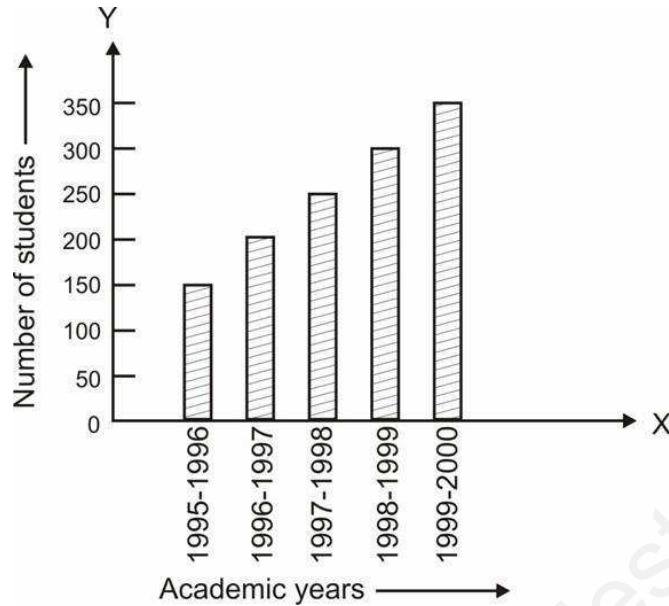
Class	VI	VII	VIII	IX	X	XI	XII
No. of children	80	65	75	100	120	80	90

Represent the data with the help of a bar graph.

Q 22 Read the bar graph shown in the figure and answer the following questions :

- (a) What is the information given by the bar graph ?
- (b) What is the order of the change of number of students over several years?
- (c) In which year is the increase of students maximum?
- (d) State whether true or false :

The enrolment during 1996 – 97 is twice that of 1995 – 96.



Q 23 The results of pass percentage of Class X and XII for 5 years are given below in the table:

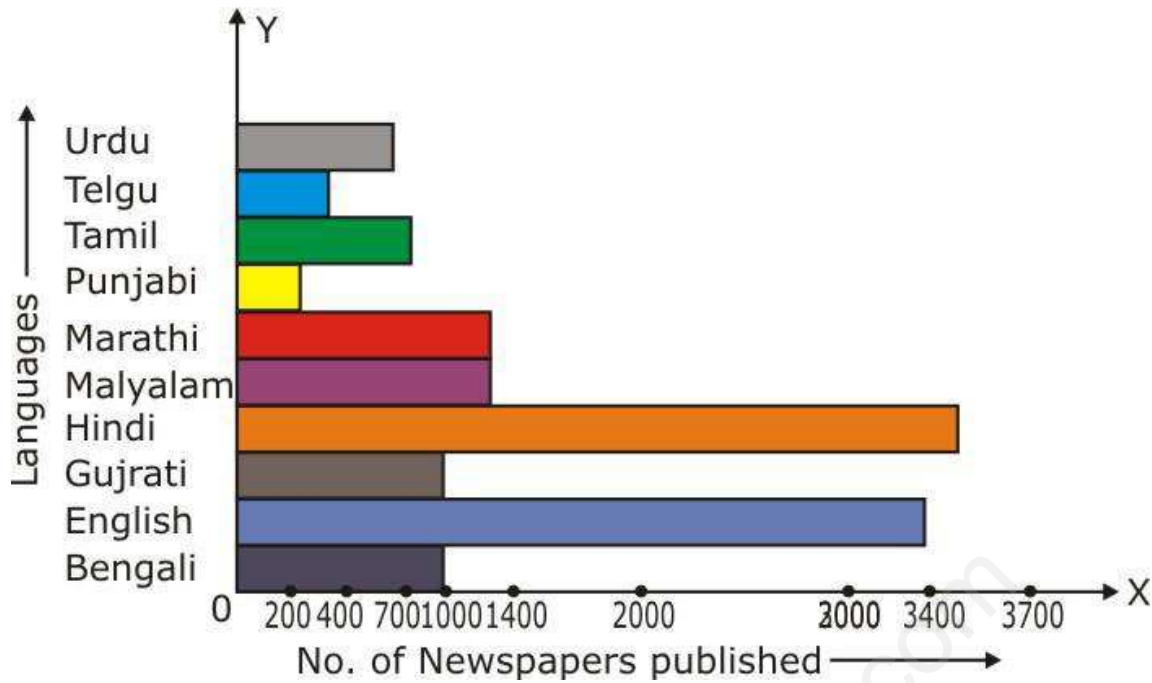
Year	1994 – 95	1995 – 96	1996 – 97	1997 - 98	1998 - 99
X	90	95	90	80	98
XII	95	80	85	90	95

Q 24 What is a bar graph?

Q 25 The bar graph shown in figure represents the circulation of newspaper in 10 languages. Study the bar graph and answer the following questions:

1. What is the total number of newspapers published in Hindi, English, Urdu, Punjabi and Bengali?
2. Name two pairs of languages which publish the same number of newspapers.
3. State the language in which the largest number of news papers is published.

4. State the language in which the number of news papers published is between 2500 and 3600.



Q 26 The marks scored by 750 students in an examination are given in the form of a frequency distribution table :

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

Represent this data in the form of a histogram and construct a frequency polygon.

Q 27 Construct a frequency polygon for the following data :

Age (in years)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Frequency	2	4	6	8	9	6	5	3	1

Q 28 Construct a frequency polygon for the following data :

Age (in years)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Frequency	2	4	6	8	9	6	5	3	1

Q 29 The following are the scores of two groups of class IV students in a test of reading ability.

Scores	Group A	Group B
50 - 52	4	2
47 - 49	10	3
44 - 46	15	4
41 - 43	18	8
38 - 40	20	12
35 - 37	12	17
32 - 34	13	22
Total	92	68

Construct a frequency polygon for each of these two groups on the same axes.

Q 30 Represent the following data by means of a histogram :

Weekly Wages (in Rs.)	10 - 15	15 - 20	20 - 25	25 - 30	30 - 40	40 - 60	60 - 80
No. of workers (frequency)	7	9	8	5	12	12	8

Q 31 Find the arithmetic mean of first 7 numbers whole numbers .

Q 32 If the mean of 2, 4, 6 and p is 11, find the value of p.

Q 33 Find the median of the following data :

37, 31, 42, 43, 46, 25, 39, 45, 32

Q 34 Find the median of the following data :

25, 34, 31, 23, 22, 26, 35, 28, 20, 32.

Q 35 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.

Q 36 If the mean of five observations x , $x + 2$, $x + 4$, $x + 6$, $x + 8$ is 11, find the mean of first three observations.

Q 37 Give one example of a situation in which

(a) The mean is an appropriate measure of central tendency.

(b) The mean is not an appropriate measure of central tendency but the median is an appropriate measure of central tendency.

Q 38 The median of the observations 11, 12, 14, 18, $x + 2$, $x + 4$, 30, 32, 35, 41 is arranged in ascending order is 24. Find the value of x .

Q 39 Find the mode of the following data :

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

Q 40 The mean monthly salary of 10 members of a group is Rs. 1445, one more member whose monthly salary is Rs. 1500 has joined the group. Find the mean monthly salary of 11 members of the group.

Q 41 Find the mode for the following series :

7.5, 7.3, 7.2, 7.2, 7.4, 7.7, 7.7, 7.5, 7.3, 7.2, 7.6, 7.2

Q 42 Following table shows the weights of 12 students:

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

Find the mean weight.

Q 43 The mean of 40 observations was 160. It was detected on rechecking that the value of 165 was wrongly copied as 125 for computation of mean. Find the correct mean.

Q 44 The mean of 5 numbers is 18. If one number is excluded, their mean is 16. Find the excluded number.

Q 45 Find the median of the following data :

19, 25, 59, 48, 35, 31, 30, 32, 51.

If a student replaces 25 by 52 by mistake, what will be the new median?

Q 46 The mean of 10 numbers is 20. If 5 is subtracted from every number, what will be the new mean?

Q 47 If the mean of the following distribution is 6, find the value of p.

x :	2	4	6	10	p + 5
f :	3	2	3	1	2

Q 48 Consider a small unit of a factory where there are 5 employees :

A supervisor and four labourers. The labourers draw a salary of Rs 5,000 per month each while the supervisor gets Rs 15,000 per month. Calculate the mean, median and mode of the salaries of this unit of the factory. Interpret the findings.