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Q1. 5 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.

Q2. Find the mode of the following marks (out of 10) obtained by 20 students:

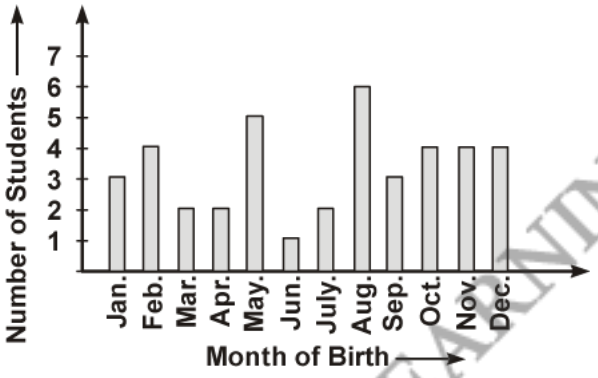
4, 6, 5, 9, 3, 2, 7, 7, 6, 5, 4, 9, 10, 10, 3, 4, 7, 6, 9, 9

Q3. Find the mode of 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18.

Q4. In a particular section of Class IX, 40 students were asked about the months of their birth and the following graph was prepared for the data so obtained.

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

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



Q5. A family with a monthly income of Rs. 20,000 had planned the following expenditures per month under various heads:

Heads	Expenditure (in thousand ruppes)
Grocery	4
Rent	5
Education of children	5
Medicine	2
Fuel	2
Entertainment	1
Miscellaneous	1

Draw a bar graph for the data above.

Q6. Find the mean of the marks obtained by 30 students of Class IX of a school are given below:

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

Q7. The heights (in cm) of 9 students of a class are as follows:

155 160 145 149 150 147 152 144 148

Find the median of this data.

Q8. The points scored by a Kabaddi term in a series of matches are as follows:

17, 2, 7, 27, 15, 5, 14, 8, 10, 24, 48, 10, 8, 7, 18, 28

Find the median of the points scored by the team.

Q9. Three coins were tossed 30 times simultaneously. Each time the number of heads occuring was noted down as follows:

0	1	2	2	1	2	3	1	3	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.

Q10. 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.

Q11. The following observations have been arranged in ascending order. If the median of the data is 63, find the valus of x.

29, 32, 48, 50, x, $x + 2$, 72, 78, 84, 95

Q12. 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
10000	1
Total	60

Q13. Give one example of a situation in which

(i) the mean is an appropirate 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.

Q14. Consider the marks, out of 100, obtained by 51 students of class in a test, given table.

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.

Q15. In a city, the weekly observations made in a study on the cost of living index are given in the following table:

Cost of living index	Number of weeks
140 – 150	5
150 – 160	10
160 – 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).

Q16. The value of π upto 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

(i) Make a frequency distribution of the digits of 0 to 9 after the decimal point.

(ii) What are the most and the least frequently occurring digits?

Q17. 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 is 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?

Q18. 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 not included). What main features do you ovserve from this tabular representation?

Q19. 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.

Q20. 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 the class intervals as 160-165, 165-170, etc.

(ii) What can you conclude about their heights from the table?

Q21. Thirty children ware 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 more hours a week?

Q22. The following data on the number of girls (to the nearest ten) per thousand boys in different sections of 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 conclusions can be arrived at from the graph.

Q23. 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
Seats 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?

Q24. 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.

Q25. 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.

Q26. The following number of goals were scored by a team 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.

Q27. The blood groups of 30 student 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?

Q28. 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

(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?

Q29. A survey conducted by an oganisation for the cause of illness and death among the women between the ages 15-44 (in years) worldwide, found the following figures (in %).

Sl. No.	Cause	Female fatality rate (%)
1.	Reproductive health conditions	31.8
2.	Neuropsychiatric conditions	25.4
3.	Injuries	12.4
4.	Cardiovascular conditions	4.3
5.	Respiratory conditions	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.

Q30. The length of 40 leaves of a plant are measured correct to one millimetre, 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. [Hint: First make the class intervals continuous]

(ii) Is there any other suitable graphical representation for the same data?

(iii) Is it correct to conclude that the maximum number of leaves are 153 mm long? Why?

Q31. The following table gives the life times of 400 neon lamps:

Life time (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 life time of more than 700 hours?

Q32. The following table gives the distribution of students of two sections according to the marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0 – 10	3	0 – 10	5
10 – 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 section on the same graph by two freuency polygons. From the two polygons compare the performance of the two sections.

Q33. The runs scored by two teams A and B on the first 60 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 – 36	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. [Hint: First make the class intervals continuous.]

Q34. 100 surnames were randomly picked up from a local telephone directory 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.

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S1. Mean = 13.

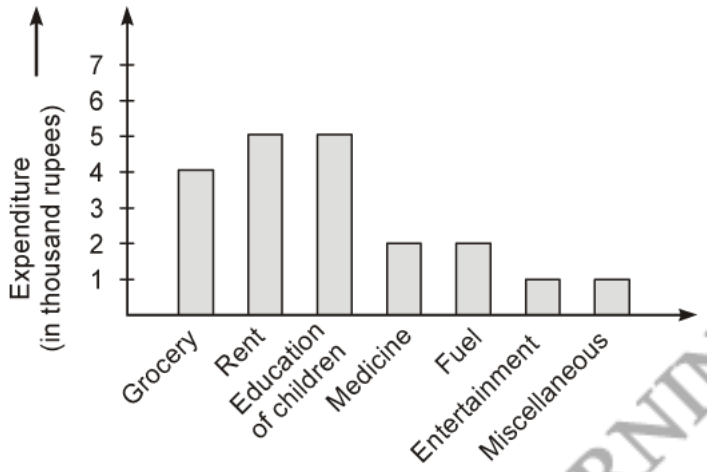
S2. Here 9 occurs most frequently, *i.e.*, four times. So, the mode is 9.

S3. 14.

S4. (i) 4 students were born in the month o November.

(ii) The maximum number of students were born in the month of August.

S5.



S6. Mean = 59.3

S7. 149 cm.

S8. Median = 12.

S9.

Number of heads	Frequency
0	6
1	10
2	9
3	5
Total	**30**

S10.

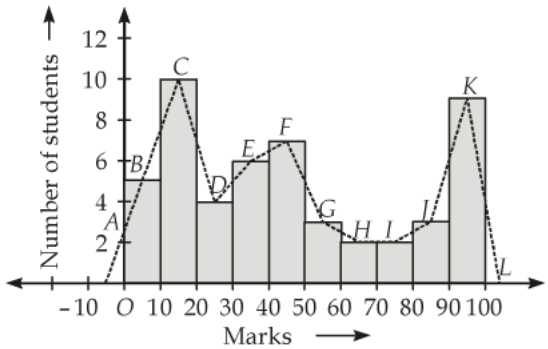
Life of batteries (in years)	Frequency
2.0 – 2.5	2
2.5 – 3.0	6
3.0 – 3.5	14
3.5 – 4.0	11
4.0 – 4.5	4
4.5 – 5.0	3
Total	**40**

S11. $x = 62$.

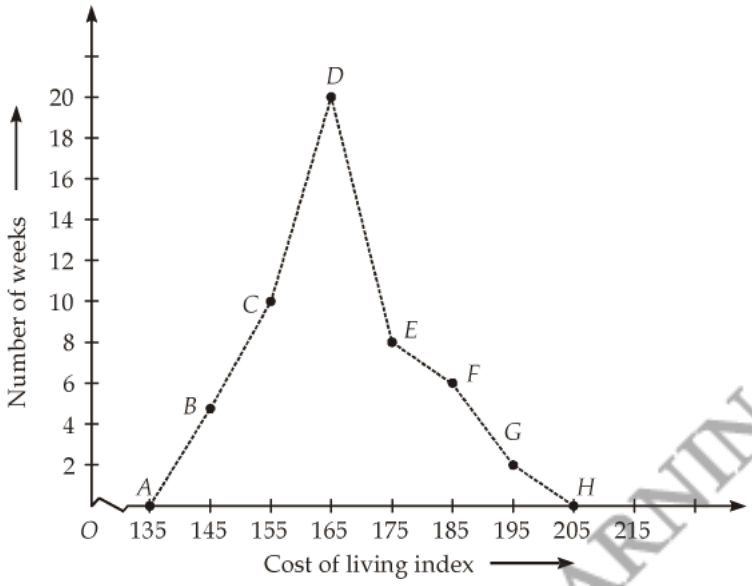
S12. Mean salary of 60 workers is Rs. 5083.33.

S13. Try yourself.

S14.



S15.



S16. (i)

Digits	Frequency
0	2
1	5
2	5
3	8
4	4
5	5
6	4
7	4
8	5
9	8
Total	**50**

(ii) The most frequently occurring digits are 3 and 9. The least occuring is 0.

S17. (i)

Digits	Frequency
0.00 – 0.04	4
0.04 – 0.08	9
0.08 – 0.12	9
0.12 – 0.16	2
0.16 – 0.20	4
0.20 – 0.24	2
Total	**30**

(ii) The concentration of sulphur dioxide was more than 0.11 ppm for 8 days.

S18.

Distance (in km)	Tally marks	Frequency
0 – 5	𝍸	5
5 – 10	𝍸 𝍸 |	11
10 – 15	𝍸 𝍸 |	11
15 – 20	𝍸 ||||	9
20 – 25	|	1
25 – 30	|	1
30 – 35	||	2
Total		**40**

S19. The mean = Rs. 7000 per month, median = Rs. 5000 per month and modal salary = Rs. 5,000 per month.

S20. (i)

Heights (in cm)	Frequency
150 – 155	12
155 – 160	9
160 – 165	14
165 – 170	10
170 – 175	5
Total	**50**

(ii) One conclusion that we can draw from the above table is that more than 50% of students are shorter than 165 cm.

S21. (i)

Number of hours	Frequency
0 – 5	10
5 – 10	13
10 – 15	5
15 – 20	2
Total	**30**

(ii) 2 children.

S22. Try yourself.

S23. **(i) Draw yourself.** **(ii)** Party A.

S24.

Age (in years)	Frequency	Width	Length of the rectangle
1 – 2	5	1	$\frac{5}{1}\times 1 = 5$
2 – 3	3	1	$\frac{3}{1}\times 1 = 3$
3 – 5	6	2	$\frac{6}{2}\times 1 = 3$
5 – 7	12	2	$\frac{12}{2}\times 1 = 6$
7 – 10	9	3	$\frac{9}{3}\times 1 = 3$
10 – 15	10	5	$\frac{10}{5}\times 1 = 2$
15 – 17	4	2	$\frac{4}{2}\times 1 = 2$

Now, you can draw the distogram, using these lengths.

S25. Mean = 54.8; Median = 52; Mode = 52.

S26. Mean = 2.8; Median = 3; Mode = 3.

S27.

Blood group	Number of students
A	9
B	6
O	12
AB	3
Total	**30**

Most common – O, Rarest – AB.

S28. (i)

Relative humidity (in %)	Frequency
84 – 86	1
86 – 88	1
88 – 90	2
90 – 92	2
92 – 94	7
94 – 96	6
96 – 98	7
98 – 100	4
Total	**30**

(ii) The data appears to be taken in the rainy season as the relative humidity is high.

(iii) Range = 99.2 – 84.9 = 14.3.

S29. **(i) Try yourself.** **(ii)** Reproductive health conditions. **(iii) Try yourself.**

S30. **(i) Draw yuorself.** **(ii)** Frequency polygon. **(iii)** No.

S31. **(ii)** 184.

S32. Try yourself.

S33. Try yourself.

S34. (i)

Number of letters	Frequency	Width of interval	Length of rectangle
1 – 4	6	3	$\frac{6}{3} \times 2 = 4$
4 – 6	30	2	$\frac{30}{2} \times 2 = 30$
6 – 8	44	2	$\frac{44}{2} \times 2 = 44$
8 – 12	16	4	$\frac{16}{4} \times 2 = 8$
12 – 20	4	8	$\frac{4}{8} \times 2 = 1$

Now, draw te distogram.

(ii) 6 – 8.