

Exercise 6.1

1. The following data shows the number of members in various families.
Construct frequency distribution. Also find cumulative frequencies.

9, 11, 4, 5, 6, 8, 4, 3, 7, 8, 5, 5, 8, 3, 4, 9, 12, 8, 9, 10, 6, 7, 7, 11, 4, 4, 8, 4, 3, 2, 7, 9,
10, 9, 7, 6, 9, 5, 7.

Solution:

Frequency distribution of number of family members.

Number of members	Tally marks	Frequency	Cumulative Frequency
2		1	1
3		3	1 + 3 = 4
4		6	4 + 6 = 10
5		4	10 + 4 = 14
6		3	14 + 3 = 17
7		6	17 + 6 = 23
8		5	23 + 5 = 28
9		6	28 + 6 = 34
10		2	34 + 2 = 36
11		2	36 + 2 = 38
12		1	38 + 1 = 39
	Total	39	

2. The following data has been obtained after weighing 40 students of class V. Make a frequency distribution taking class interval size as 5. Also find the class boundaries and midpoints.

34, 26, 33, 32, 24, 21, 37, 40, 41, 28, 31, 33, 34, 37, 23, 27, 31, 31, 36, 29, 35, 36,

37, 38, 22, 27, 28, 29, 31, 35, 35, 40, 21, 32, 33, 27, 29, 30, 23.

Also make a less than cumulative frequency distribution. (Hint: Make classes 20-24, 25-29....).

Solution:

Frequency Distribution				
Class Limits	Tally marks	Frequency	Midpoint	Class Boundaries
20 - 24	++++	6	22	19.5 - 24.5
25 - 29	++++ +++++	10	27	24.5 - 29.5
30 - 34	++++ +++++	12	32	29.5 - 34.5
35 - 39	++++	9	37	34.5 - 39.5
40 - 44		3	42	39.5 - 44.5
		40		

Less than Cumulative Frequency Distribution

Class Boundaries	Frequency f	Cumulative Frequency	Class Boundaries	Cumulative Frequency
14.5 - 19.5	0	0	Less than 19.5	0
19.5 - 24.5	6	0+6=6	Less than 24.5	6
24.5 - 29.5	10	6 + 10 = 16	Less than 29.5	16
29.5 - 34.5	12	16 + 12 = 28	Less than 34.5	28
34.5 - 39.5	9	28 + 9 = 37	Less than 39.5	37

3. From the following data representing the salaries of 30 teachers of a school. Make a frequency distribution taking class interval size of Rs.100, 450, 500, 550, 580, 670, 1200, 1150, 1120, 950, 1130, 1230, 890, 780, 760, 670, 880, 890, 1050, 980, 970, 1020, 1130, 1220, 760, 690, 710, 750, 1120, 760, 1240.

(Hint: Make classes 450-549, 550-649,.....)

Solution:

Class Limits	Tally Marks	Frequency
450 - 549	aa	2
550 - 649	aa	2
650- 749	D	4
750 - 849	E	5
850 - 949	C	3
950 - 1049	D	4
1050 - 1149	E	5
1150 - 1249	E	5
	Total =	30

Q4. The following data shows the daily load shedding duration in hours, in 30

6, 12, 5, 7, 3, 3, 6, 10, 2, 14, 11, 12, 8, 6, 8, 9, 7, 11, 6, 9, 12, 13, 10, 14, 7, 6, 10, 11, 14, 12,

a) Find the most frequent load shedding hours?

b) Find the least load shedding intervals?

(Hint: Make classes 2-3, 4-5, 6-7....)

Solution:

Frequency Distribution Table

Class Limits	Talley marks	Frequency
2 - 3	B	2
4 - 5		1
6 - 7	E D	9
8 - 9	E	5
10 - 11	E A	6
12 - 13	E	5
14 - 15	C	3
	Total =	31

(a) Find the most frequent load shedding hours.

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(b) Find the least load shedding intervals.

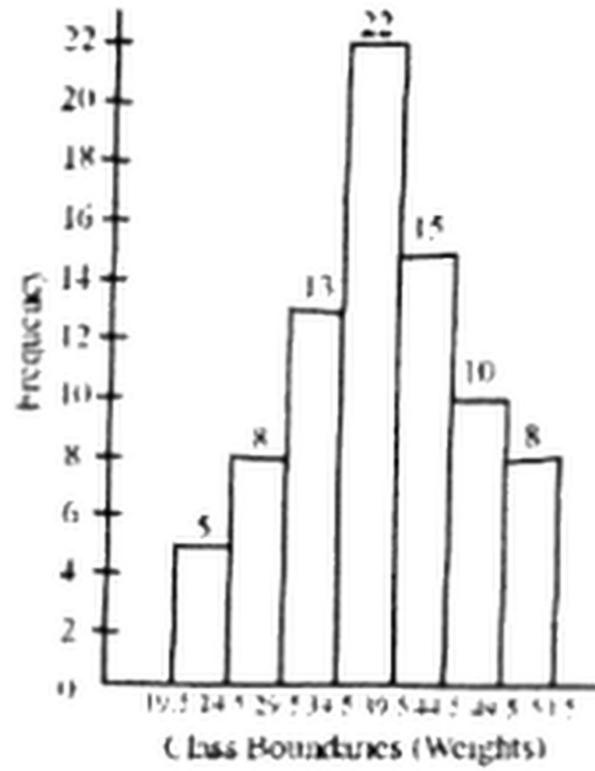
4 - 5

Q5. Construct a Histogram and frequency Polygon for the following data showing weights of students in kg.

Weights	Frequency / No. of students
20-24	5
25-29	8
30-34	13
35-39	22
40-44	15
45-49	10
50-54	8

Solution:

Class Boundaries	Frequency
19.5 - 24.5	5
24.5 - 29.5	8
29.5 - 34.5	13
34.5 - 39.5	22
39.5 - 44.5	15
44.5 - 49.5	10
49.5 - 54.5	8



Class Limits	Mid Points	Frequency
15 - 19	17	0
20 - 24	22	5
25 - 29	27	8
30 - 34	32	13
35 - 39	37	22
40 - 44	42	15
45 - 49	47	10
50 - 54	52	8
55 - 59	57	0

Note:

Two additional groups with same size of class interval are taken. One before the very first group and second after the very last group. These two groups will have frequency "0"

