

EXERCISE 33(A)

1. Marks scored by 30 students of class VI are as given below:

38, 46, 33, 45, 63, 53, 40, 85, 52, 75, 60, 73, 62, 22, 69, 43, 45, 33, 47, 41, 29, 43, 37, 49, 83, 44, 55, 22, 35 and 45. State:

- (i) the highest marks scored
- (ii) the lowest marks scored
- (iii) the range of marks

Solution:

(i) The highest marks scored is 85

(ii) The lowest marks scored is 22

(iii) Range of marks = Difference between highest and lowest marks

$$= 85 - 22$$

$$= 63$$

Therefore, the range of marks is 63

2. For the following raw data, form a discrete frequency distribution:

30, 32, 32, 28, 34, 34, 32, 30, 30, 32, 32, 34, 30, 32, 32, 28, 32, 30, 28, 30, 32, 32, 30, 28 and 30

Solution:

The required frequency table is shown below

Marks	Tally marks	Frequency
28		4
30		8
32		10
34		3
Total		25

3. Define:

(i) data

(ii) frequency of an observation

Solution:

(i) Data: Information in the form of numerical figures is known as data

(ii) Frequency of an observation: The number of times a particular observation occurs is known as its frequency

4. Rearrange the following raw data in descending order:

5.3, 5.2, 5.1, 5.7, 5.6, 6.0, 5.5, 5.9, 5.8, 6.1, 5.5, 5.8, 5.7, 5.9 and 5.4. Then write the:

(i) highest value

(ii) lowest value

(iii) range of values

Solution:

The given numbers in descending order are as follows:

6.1, 6.0, 5.9, 5.9, 5.8, 5.8, 5.7, 5.7, 5.6, 5.5, 5.5, 5.4, 5.3, 5.2, 5.1

(i) Hence, the highest value is 6.1

(ii) Hence, the lowest value is 5.1

(iii) Range of values = Difference between highest value and lowest value

Hence,

Range of values = highest value – lowest value

= 6.1 – 5.1

= 1.0

5. Represent the following data in the form of a frequency distribution:

52, 56, 72, 68, 52, 68, 52, 68, 52, 60, 56, 72, 56, 60, 64, 56, 48, 48, 64 and 64

Solution:

The required frequency table for the given data is as follows:

Marks	Tally marks	Frequency
48		2
52		4
56		4
60		2
64		3
68		3
72		2
Total		20

6. In a study of number of accidents per day, the observations for 30 days were obtained as follows:

6	3	5	6	4	3	2	5	4	2
4	0	5	3	6	1	5	5	2	6
2	1	2	2	0	5	4	6	1	6

Construct a suitable frequency distribution table.

Solution:

The required frequency table is shown below:

No. of accidents	Tally marks	Frequency
0		2
1		3
2		6
3		3
4		4
5		6
6		6
Total		30

7. The following data represents the weekly wages (in Rs) of 15 workers in a factory:
900, 850, 800, 850, 800, 750, 950, 900, 950, 800, 750, 900, 750, 800 and 850

Prepare a frequency distribution table. Now find,

(i) how many workers are getting less than Rs 850 per week?

(ii) how many workers are getting more than Rs 800 per week?

Solution:

The required frequency table is as follows:

Weekly wages in Rs	Tally marks	Frequency
750		3
800		4
850		3
900		3
950		2
Total no. of workers		15

(i) Number of workers getting less than Rs 850 per week are,

Number of workers getting Rs 750 = 3 workers

Number of workers getting Rs 800 = 4 workers

Hence, workers getting less than Rs 850 = 4 + 3
= 7 workers

Therefore, 7 workers are getting less than Rs 850 per week

(ii) Number of workers getting more than Rs 800 per week are,

Number of workers getting Rs 850 = 3

Number of workers getting Rs 900 = 3

Number of workers getting Rs 950 = 2

So, number of workers getting more than Rs 800 = $3 + 3 + 2$

= 8 workers

Therefore, 8 workers are getting more than Rs 800 per week

8. Using the data, given below, construct a frequency distribution table:

9, 17, 12, 20, 9, 18, 25, 17, 19, 9, 12, 9, 12, 18, 17, 19, 20, 25, 9 and 12. Now answer the following:

(i) How many numbers are less than 19?

(ii) How many numbers are more than 20?

(iii) Which of the numbers, given above, is occurring most frequently?

Solution:

The required frequency table is as follows:

Marks	Tally marks	Frequency
9		5
12		4
17		3
18		2
19		2
20		2
25		2
Total		20

(i) Total numbers less than 19 = 14

(ii) Total numbers more than 20 = 2

(iii) The number 9 occurs 5 times.

Hence, the number which is occurring most frequently is 9

10. Using the following data, construct a frequency distribution table: 46, 44, 42, 54, 52, 60, 50, 58, 56, 62, 50, 56, 54, 58 and 48

Now answer the following:

(i) What is the range of the numbers?

(ii) How many numbers are greater than 50?

(iii) How many numbers are between 40 and 50?

Solution:

Marks	Tally marks	Frequency
42		1
44		1
46		1
48		1
50		2
52		1
54		2
56		2
58		2
60		1
62		1
Total		15

(i) Range of numbers = Highest number – Lowest number

$$= 62 - 42$$

$$= 20$$

(ii) There are 9 numbers which are greater than 50

(iii) There are 6 numbers which are between 40 and 50