EXERCISE 23.2 PAGE NO: 23.14

1. The marks obtained by 40 students of class VIII in an examination are given below :
16, 17, 18, 3, 7, 23, 18, 13, 10, 21, 7, 1, 13, 21, 13, 15, 19, 24, 16, 3, 23, 5, 12, 18, 8, 12, 6, 8, 16, 5, 3, 5, 0, 7, 9, 12, 20, 10, 2, 23.
Divide the data into five groups namely 0-5, 5-10, 10-15, 15-20 and 20-25 and prepare a grouped frequency table.
Solution:
The frequency table for the marks of 40 students of class VIII in an examination is shown below:

Range of Marks	No: of Students
0-5	9
5-10	9
10-15	7
15-20	9
20-25	6

2. The marks scored by 20 students in a test are given below:
54, 42, 68, 56, 62, 71, 78, 51, 72, 53, 44, 58, 47, 64, 41, 57, 89, 53, 84, 57.
Complete the following frequency table:

(Marks in class intervals)	Tally marks	Frequency (No. of children)
40-50		
50-60		
60-70		
70-80		
80-90		

What is the class interval in which the greatest frequency occurs?
Solution:
The frequency table can be completed as follows:

Marks in Class Interval	Tally Marks	No: of Children
40 - 50	||||	4

50 - 60	𝍸 |||	8
60 - 70	|||	3
70 - 80	|||	3
80 - 90	||	2

The class interval with the greatest frequency (8) is 50-60.

3. The following is the distribution of weights (in kg) of 52 persons:

Weight in kg	Persons
30 – 40	10
40 – 50	15
50 – 60	17
60 – 70	6
70 – 80	4

(i) What is the lower limit of class 50-60?
(ii) Find the class marks of the classes 40-50, 50-60.
(iii) What is the class size?
Solution:
(i) The lower limit of the class 50-60 is 50.

(ii) Class mark for the class 40-50:
i.e., (40+50) / 2 = 90/2 = 45
Again, Class mark for the class 50-60:
i.e., (50+60) / 2 = 110/2 = 55

(iii) Here the class size is 40-30, i.e. 10.

4. Construct a frequency table for the following weights (in gm) of 35 mangoes using the equal class intervals, one of them is 40-45 (45 not included) :
30, 40, 45, 32, 43, 50, 55, 62, 70, 70, 61, 62, 53, 52, 50, 42, 35, 37, 53, 55, 65, 70, 73, 74, 45, 46, 58, 59, 60, 62, 74, 34, 35, 70, 68.
(i) What is the class mark of the class interval 40-45?
(ii) What is the range of the above weights?
(iii) How many classes are there?
Solution:

Weight (in grams)	No: of Mangoes

30 - 35	5
35 - 40	2
40 - 45	4
45 - 50	3
50 - 55	5
55 - 60	3
60 - 65	5
65 - 70	5
70 - 75	3

(i) Class mark for the class interval 40 – 45:
Class mark = (40+45) / 2 = 85/2 = 42.5

(ii) Range of the above weights:
Range = Highest value – Lowest value
Range = 74 – 30 = 44

(iii) Number of classes = 9

5. Construct a frequency table with class-intervals 0-5 (5 not included) of the following marks obtained by a group of 30 students in an examination :
0, 5, 7, 10, 12, 15, 20, 22, 25, 27, 8, 11, 17, 3, 6, 9, 17, 19, 21, 29, 31, 35, 37, 40, 42, 45, 49, 4, 50, 16.
Solution:
The frequency table with class intervals 0 – 5, 5 – 10, 10 – 15, . . . , 45 – 50 is shown below:

Marks	No: of Students
0 – 5	3
5 – 10	5
10 – 15	3
15 – 20	5
20 – 25	3
25 – 30	3
30 – 35	1
35 – 40	2
40 – 45	2
45 – 50	2
50 - 55	1

6. The marks scored by 40 students of class VIII in mathematics are given below :
81, 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.
Prepare a frequency distribution with class size of 10 marks.
Solution:
The frequency table of the marks scored by 40 students of class VIII in mathematics is shown below:

Marks	Frequency Distribution
20 – 30	1
30 – 40	3
40 – 50	5
50 – 60	8
60 – 70	9
70 – 80	8
80 – 90	34
90 – 100	2

7. The heights (in cm) of 30 students of class VIII are given below :
155, 158, 154, 158, 160, 148, 149, 150, 153, 159, 161, 148, 157, 153, 157, 162, 159, 151, 154, 156, 152, 156, 160, 152, 147, 155, 163, 155, 157, 153.
Prepare a frequency distribution table with 160-164 as one of the class intervals.
Solution:
The frequency distribution table is shown below:

Height (in cm)	No: of Students
145 – 149	4
150 – 154	9
155 – 159	12
160 – 164	5

8. The monthly wages of 30 workers in a factory are given below:

830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820, 860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835, 836, 878, 840, 868, 890, 806, 840, 890.
Represent the data in the form of a frequency distribution with class size 10.
Solution:
The frequency table of the monthly wages of 30 workers in a factory is shown below:

Wages	No: of Workers
800 – 809	3
810 – 819	2
820 – 829	1
830 – 839	8
840 – 849	5
850 – 859	1
860 – 869	3
870 – 879	1
880 – 889	1
890 – 899	5

9. Construct a frequency table with equal class intervals from the following data on the monthly wages (in rupees) of 28 labourers working in a factory, taking one of the class intervals as 210-230 (230 not included) :
220, 268, 258, 242, 210, 268, 272, 242, 311, 290, 300, 320, 319, 304, 302, 318, 306, 292, 254, 278, 210, 240, 280, 316, 306, 215, 256, 236.
Solution:
The frequency table of the monthly wages of 28 laborers working in a factory is shown below:

Wages	No: of Workers
210 – 230	4
230 – 250	4
250 – 270	5
270 – 290	3
290 – 310	7
310 – 330	5

10. The daily minimum temperatures in degrees Celsius recorded in a certain Arctic region are as follows :
- 12.5, -10.8, -18.6, -8.4, -10.8, -4.2, -4.8, -6.7, -13.2, -11.8, -2.3, 1.2, 2.6, 0, -2.4, 0, 3.2, 2.7, 3.4, 0, -2.4, -2.4, 0, 3.2, 2.7, 3.4, 0, -2.4, -5.8, -8.9, -14.6, -12.3, -11.5, -7.8, -2.9
Represent them as frequency distribution table taking -19.9 to -15 as the first class interval.
Solution:
The frequency table of the daily minimum temperatures is shown below:

Temperature	Frequency Distribution

–19.9 to –15	1
–15 to –11.1	6
–11.1 to –6.2	6
–6.2 to –1.3	9
–1.3 to 3.6	13