

Ex - 14.2

Q1. The blood groups of 30 students 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?

Sol.

Blood group	A	B	O	AB	Total
No. of	9	6	12	3	30

Most common – O, Rarest – AB

Q2. 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 observe from this tabular representation?

Sol.

Distances (in km)	Tally Marks	Frequency
0-5		5
5-10		11
10-15		11
15-20	III	9
20-25		1
25-30		1
30-35		2
Total		40

Q3. 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?

Sol. (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 = $99.2 - 84.9 = 14.3$

Q4. 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?

Sol. (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 the more than 50% of students are shorter than 165 cm.

Q5. 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?

Sol.

(i)

Concentration of sulphur dioxide (in ppm)	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.

Q6. Three coins were tossed 30 times simultaneously. Each time the number of heads occurring 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.

Sol.

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

Q7. The value of π upto 50 decimal places is given below :

3.1415926535897932384626433 8327950288419716939937510

- (i) Make a frequency distribution of the digits from 0 to 9 after the decimal point.
- (ii) What are the most and the least frequently occurring digits?

Sol. (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 occurring is 0.

Q8. Thirty children were 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 or more hours a week?

Sol. (i)

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

(ii) 2 children.

Q9. 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.

Sol.

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