Unit 5 (Data Handling)

Question 1:

Using tally marks, which one of the following represents the number eight?

(a) 𝍸 (b) 𝍸 𝍸 (c) 𝍸 𝍸 || (d) 𝍸 𝍸 |||

Solution:

(d) We know that, 8 = 5 + 3

Here, 5 is represented by 𝍸 and 3 is represented by |||.

So, 8 is represented by 𝍸 |||.

Question 2:

The marks (out of 10) obtained by 28 students in a Mathematics test are listed as below: 8,1, 2, 6, 5, 5, 5,0,1, 9, 7, 8, 0, 5, 8, 3, 0, 8, 10, 10, 3, 4, 8, 7, 8, 9, 2, 0 The number of students who obtained marks more than or equal to 5, is (a) 13 (b) 15 (c) 16 (d) 17

Solution:

(d) In order to find out how many students obtained marks more than or equal to 5, we will arrange the given data in a table, using tally marks.

Marks in Mathematics test Tally marks Number of students

Marks in Mathematics test	Tally marks	Number of students
0	𝍸	4
1	||	2
2	||	2
3	||	2
4	|	1
5	𝍸	4
6	|	1
7	||	2
8	𝍸 |	6
9	||	2
10	||	2

The number of students who obtained marks more than or equal to 5

=4 + 1 + 2 + 6 + 2 + 2

=17

Question 3:

In question 2, the number of students who scored marks less than 4 is (a) 15 (b) 13 (c) 12 (d) 10

Solution:

(d) From the table of question 2, we can calculate the number of students who scored marks less than 4.

Number of students who scored less than 4 marks = 4 + 2 + 2 + 2 = 10

Question 4:

The choices of the fruits of 42 students in a class are as follows:

A , O , B , M , A , G , B , G , A , G , B , M , A , G ,
M , A , B , G , M , B , A , O , M , O , G , B , O , M ,
G , A , A , B , M , O , M , G , B , A , M , O , M , O

where, A, B, G, M and 0 stands for the fruits Apple, Banana, Grapes, Mango and Orange, respectively.

Which two fruits are liked by an equal number of students?

(a) A and M (b) M and B

(c) B and O (d) B and G

Solution:

(d) Table with tally marks from the given information is shown below

Fruits	Tally marks	Number of students
A (Apple)	𝍸 ||||	9
B (Banana)	𝍸 |||	8
G (Grapes)	𝍸 |||	8
M (Mango)	𝍸 𝍸	10
O (Orange)	𝍸 ||	7

From the table, we can observe that banana and grapes are liked by equal number of students, i.e. 8.

Question 5:

According to the data of question 4, which fruit is liked by most of the students?

(a) O (b) G (c) M (d) A

Solution:

(c) From the table of question 4, we can observe that mango is liked by most of the students.

True / False

In questions 6 to 13, state whether the given statements are True or False.

Question 6:

In a bar graph, the width of bars may be unequal.

Solution:

False

Since, a bar graph is a pictorial representation of the numerical data by a number of bars of uniform width erected horizontally or vertically with equal spacing between them.

Question 7:

In a bar graph, bars of uniform width are drawn vertically only.

Solution:

False

Bars of uniform width can be drawn vertically or horizontally.

Question 8:

In a bar graph, the gap between two consecutive bars may not be the same.

Solution:

False

In a bar graph, the gap between two consecutive bars must be equal.

Question 9:

In a bar graph, each bar (rectangle) represents only one value of the numerical data.

Solution:

True

In a bar graph, each bar (rectangle) represents only one value of the numerical data.

Question 10:

To represent the population of different towns using bar graph, it is convenient to take one unit length to represent one person.

Solution:

False

We take scale as per the given data.

Question 11:

Pictographs and bar graphs are pictorial representations of the numerical data.

Solution:

True

Pictographs and bar graphs are pictorial representations of the numerical data.

Question 12:

An observation, occurring five times in a data is recorded as | | | | | using tally marks.

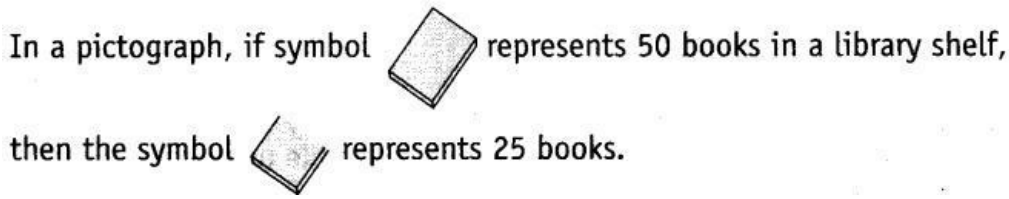
Solution:

False

The numerical data five represented as using

tally marks. then the symbol True

Question 13:



Solution:

if picture of 1 book represents 50 books in a library, then picture of 1/2 book will represent 25 books in a library.

Fill in the Blanks

In questions 14 to 21, fill in the blanks to make the statements true.

Question 14:

A …… is a collection of numbers gathered to give some meaningful information.

Solution:

A data is a collection of numbers gathered to give some meaningful information.

Question 15:

The data can be arranged in a tabular form using ……. marks.

Solution:

The data can be arranged in a tabular form using tally marks.

Question 16:

A ……. represents data through pictures of objects.

Solution:

A pictograph represents data through pictures of objects.

Question 17:

In a bar graph,……. can be drawn horizontally or vertically.

Solution:

In a bar graph, bars can be drawn horizontally or vertically.

Question 18:

In a bar graph, bars of width can be drawn horizontally or vertically with spacing between them.

Solution:

In a bar graph, bars of uniform width can be drawn horizontally or vertically with equal spacing between them.

Question 19:

An observation occurring seven times in a data is represented as using tally marks.

Solution:

An observation occurring seven times in a data is represented as

using tally marks.

Question 20:

In a pictograph, if a symbol  represents 20 flowers in a basket, then  stands for____flowers.

Solution:

In a pictograph, if a symbol represents 20 flowers in a basket, then three symbols will represents (20 + 20 + 20)flowers i.e. 60 flowers.

Question 21:

On the scale of 1 unit length =10 crore, the bar of length 6 units will represent crore and*of units will represent 75 crore.

Solution:

Given, 1 unit length =10 crore

$\therefore$ 6 units length $= 10 \text{ crore} \times 6 = \mathbf{60}$ crore

and 75 crore $= \dfrac{75 \text{ crore}}{10 \text{ crore}} = 7\dfrac{1}{2}$ units

Question 22:

In an examination, the grades achieved by 30 students of a class are given below. Arrange these grades in a table using tally marks.

B, C, C, E, A, C, B, B, D, D, D, D, B, C, C, C, A, C, B, E, A, D, C, B, E, C, B, E, C, D.

Solution:

On arranging the given data in a table using tally marks, as shown below table

Grades	Tally marks	Number of students
A	|||	3
B	𝍸 ||	7
C	𝍸 𝍸	10
D	𝍸 |	6
E	||||	4

Question 23:

The number of two wheelers owned individually by each of 50 families is listed below. Make a table using tally marks.

1, 1, 2, 1, 1, 1, 2, 1, 2, 1, 0, 1, 1, 2, 3, 1, 2, 1, 1, 2, 1, 2, 3, 1, 0, 2, 1, 0, 2, 1, 2, 1, 2, 1, 1, 4, 1, 3, 1, 1, 2, 1, 1, 1, 1, 2, 3, 2, 1, 1

Find the number of families having two or, more two wheelers.

Solution:

On arranging the given data in a table using tally marks, as shown below table

Number of two wheelers	Tally marks	Number of families
0	|||	3
1	𝍸 𝍸 𝍸 𝍸 𝍸 |||	28
2	𝍸 𝍸 ||||	14
3	||||	4
4	|	1

From the table, the number of families having two or more two wheelers = 14+4+1 = 19

Question 24:

The lengths in centimetres (to the nearest centimetre) of 30 carrots are given as follows:

15, 22, 21, 20, 22, 15, 15, 20, 20, 15, 20, 18, 20, 22, 21,

20, 21, 18, 21, 18, 20, 18, 21, 18, 22, 20, 15, 21, 18, 20

Arrange the data given above in a table using tally marks and answer the following questions:

(a) What is the number of carrots, which have length more than 20 cm?

(b) Which length of the carrots occur maximum and miniumum number of times?

Solution:

On arranging the given data in a table using tally marks, as shown below table

Length of carrots (in cm)	Tally marks	Number of carrots
15	𝍸	5
18	𝍸 |	6
20	𝍸 ||||	9
21	𝍸 |	6
22	||||	4

(a) Number of carrots having length more than 20 cm = 6 + 4 = 10

(b) From the table, maximum number of carrots = 9 and minimum number of carrots = 4

Length of carrots occurring maximum number of times = 20 cm and length of carrot occurring minimum number of times = 22 cm

Question 25:

Thirty students were interviewed to find out what they want to be in future. Their responses are listed as below: .

doctor, engineer, doctor, pilot, officer, doctor, engineer, doctor, pilot, officer, pilot, engineer, officer, pilot, doctor, engineer, pilot, officer, doctor, officer, doctor, pilot, engineer, doctor, pilot, officer, doctor, pilot, doctor, engineer.

Arrange the data in a table using tally marks.

Solution:

On arranging the given data in a table using tally marks, we get the following table

Future profession	Tally marks	Number of students
Doctor	𝍸 𝍸	10
Engineer	𝍸 |	6
Officer	𝍸 |	6
Pilot	𝍸 |||	8

Question 26:

Following are the choices of games of 40 students of Class VI:

football, cricket, football, kho-kho, hockey, cricket, hockey, kho-kho, tennis, tennis, cricket, football, football, hockey, kho-kho, football, cricket, tennis, football, hockey, kho-kho, football, cricket, cricket, football, hockey, kho-kho, tennis, football, hockey, cricket, football, hockey, cricket, football, kho-kho, football, cricket, hockey, football.

(a) Arrange the choices of games in a table using tally marks.

(b) Which game is liked by most of the students?

(c) Which game is liked by minimum number of students?

Solution:

(a) On arranging the given data in a table using tally marks, as shown below

Name of the game	Tally marks	Number of students
Cricket	𝍸 ||||	9
Football	𝍸 𝍸 |||	13
Hockey	𝍸 |||	8
Kho-Kho	𝍸 |	6
Tennis	||||	4

(b) From the table, we can observe that football is liked by most of the students.

(c) From the table, we can observe that tennis is liked by minimum number of students.

Question 27:

Fill in the blanks in the following table which represents shirt size of 40 students of a school. ‘

Shirt size	Tally marks	Number of students
30	|||	3
32	𝍸	—
34	—	8
36	𝍸 ||	—
38	𝍸	10
40	—	7

Solution:

(ii) 𝍸 shows four vertical lines and one intersecting line.
It mean 4 + 1, i.e. **5**.

(iii) We know that, 8 = 5 + 3
Here, 5 is represented by 𝍸 and 3 is represented by |||.
So, 8 is represented by 𝍸 |||.

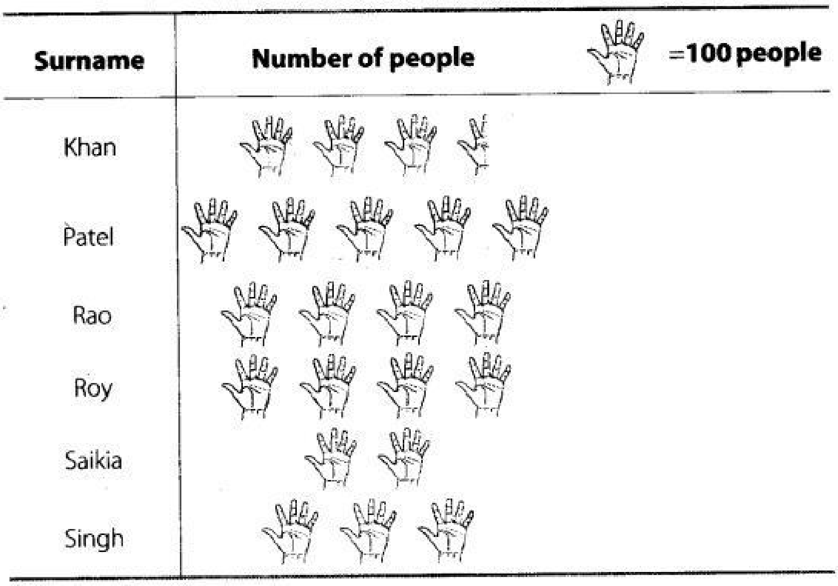
(iv) 𝍸 || means 5 + 2, i.e. 7.

(v) We know that, 10 = 5 + 5
Here, 5 is represented by 𝍸.
So, 10 is represented by 𝍸 𝍸.

(vi) We know that, 7 = 5 + 2
Here, 5 is represented by 𝍸 and 2 is represented by ||.
So, 7 is represented by 𝍸||.

Question 28:

Following pictograph represents some surnames of people listed in the telephone directory of a city.



Observe the pictograph and answer the following questions:

(a) How many people have surname 'Roy?

(b) Which surname appears the maximum number of times in the telephone directory?

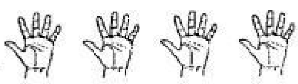
(c) Which surname appears the least number of times in the directory?

(d) Which two surnames appear an equal number

Solution:

(a) Given,

 =100 people

Then,  $= 4 \times 100 = 400$ people

So, 400 peoples have surname Roy.

(b) From the pictograph, we can observe that most of people have surname 'Patel'.

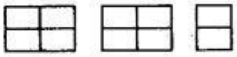
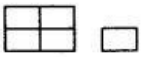
(c) From the pictograph, we can observe that surname 'Saikia' appears the least number of times in the directory.

(d) 'Rao' and 'Roy' surnames appear an equal number of times.

Question 29:

Students of Class VI in a school were given a task to count the number of articles made of

different materials in the school. The information collected by them is represented as follows:

Material used	Articles	▦ = 20 articles
Wood		
Glass		
Metal		
Rubber		
Plastic		

Observe the pictograph and answer the following questions:

(a) Which material is used in maximum number of articles?

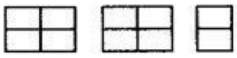
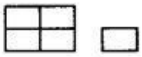
(b) Which material is used in minimum number of articles?

(c) Which material is used in exactly half the number of articles as those made up of metal?

(d) What is the total number of articles counted by the students?

Solution:

The number of articles of different materials is depicted (represented) by the following table

Material used	Articles	Number of articles
Wood		20 + 10 = 30
Glass		20
Metal		20 + 20 + 10 = 50
Rubber		20 + 5 = 25
Plastic		20 + 15 = 35

(a) Metal is used in the maximum number of articles.

(b) Glass is used in the minimum number of articles.

(c) From the pictograph, we observe that 50 articles were made of metal whereas 25 articles were made of rubber, which is exactly half the number of articles as those made up of metal.

(d) Total number of articles = Articles made of (wood + glass + metal + rubber + plastic)

= 30+20+ 50+25+ 35 = 160

Question 30:

The number of scouts in a school is depicted by the following pictograph:

Class	Number of scouts	☺ = 10 scouts
VI		
VII		
VIII		
IX		
X		

Observe the pictograph and answer the following questions:

(a) Which class has the minimum number of scouts?

(b) Which class has the maximum number of scouts?

(c) How many scouts are there in Class VI?

(d) Which class has exactly four times the scouts as that of Class X?

(e) What is the total number of scouts in the Classes VI to X?

Solution:

(a) Class X has minimum number of scouts, i.e. 10.

(b) Class VIII has maximum number of scouts i.e. 60.

(c) Number of scouts in Class VI =40

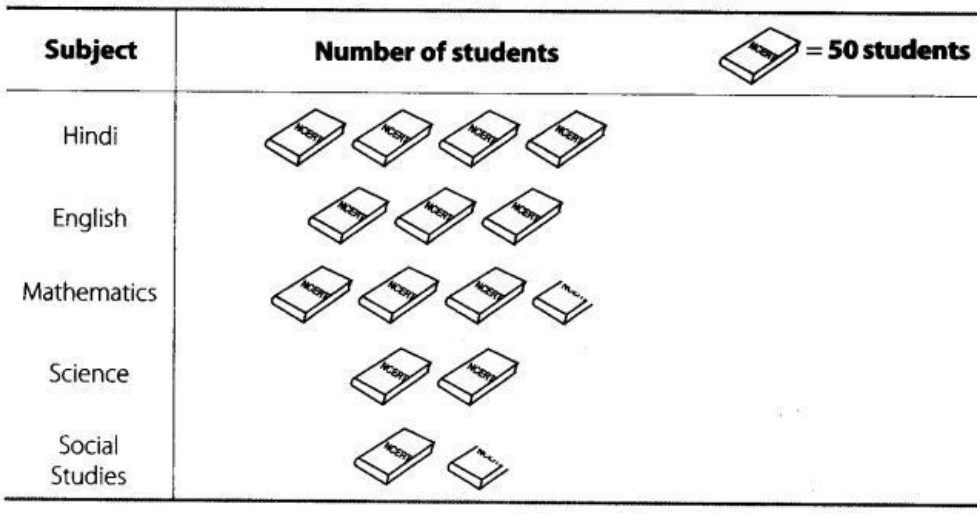
(d) Number of scouts in Class X =10 Number of scouts in Class VI = 4 x 10 = 40

Hence, class VI has exactly four times the scouts as that of Class X.

(e) Total number of scouts in Classes VI to X = 40 + 20 + 60 + 30 + 10 = 160.

Question 31:

A survey was carried out in a certain school to find out the popular school subjects among students of Classes VI to VIII. The data in this regard is displayed as pictograph given below:



(a) Which subject is most popular among the students?

(b) How many students like Mathematics?

(c) Find the number of students who like subjects other than Mathematics and Science.

Solution:

(a) Hindi is most popular subject among the students.

(b) 175 students like Mathematics.

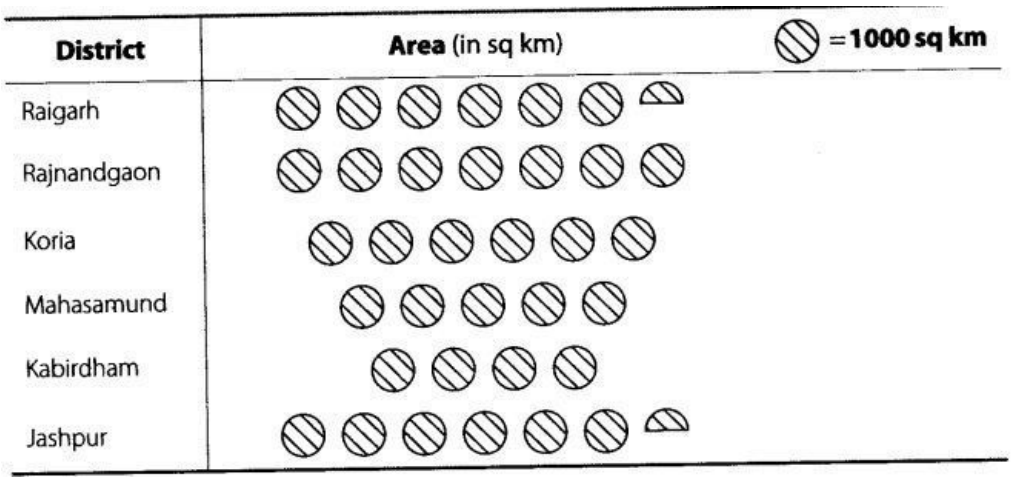
(c) Subjects other than Mathematics and Science are Hindi, English and Social Studies.

Therefore, the number of students who liked Hindi, English and Social Studies

= 200+ 150+75=425

Question 32:

The following pictograph depicts the information about the areas in a square kilometre (to nearest hundred) of some districts of Chhattisgarh state:



(a) What is the area of Koria district?

(b) Which two districts have the same area?

(c) How many districts have area more than 5000 sq km?

Solution:

(a) Area of Koria district =6000 sq km

(b) Raigarh and Jashpur have the same area.

(c) Four districts have area more than 5000 sq km.

Question 33:

The number of bottles of cold drink sold by a shopkeeper on six consecutive days is as follows:

Days	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Number of bottles	350	200	300	250	100	150

Prepare a pictograph of the data using one symbol to represent 50 bottles.

Solution:

Let 50 bottles of cold drinks can be represented by  .

For Sunday,

350 cold drink bottles can be represented by 7 complete symbols.

For Monday,

200 cold drink bottles can be represented by 4 complete symbols. For Tuesday,

300 cold drink bottles can be represented by 6 complete symbols. For Wednesday,

250 cold drink bottles can be represented by 5 complete symbols. For Thursday,

100 cold drink bottles can be represented by 2 complete symbols. For Friday,

150 cold drink bottles can be represented by 3 complete symbols. Hence, the required pictograph of given data is shown below

Days	**Bottles**  **=50 bottles**
Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Question 34:

The following table gives information about the circulation of newspaper (dailies) in a town in five languages:

Languages	English	Hindi	Tamil	Punjabi	Gujarati
Number of newspapers	5000	8500	500	2500	1000

Prepare a pictograph of the above data using a symbol of your choice, each representing 1000 newspapers.

Solution:

1000 newspapers can be represented by [+]

and 500 newspapers can be represented by [□].

For English language,

5000 newspapers can be represented by 5 complete symbols.

For Hindi language,

8500 newspapers can be represented by 8 complete and 1 incomplete symbol.

For Tamil language,

500 newspapers can be represented by 1 incomplete symbol.

Take [+] = 1000 newspapers and [□] = 500 newspapers

Language	Number of newspapers
English	[+] [+] [+] [+] [+]
Hindi	[+] [+] [+] [+] [+] [+] [+] [+] [□]
Tamil	[□]
Punjabi	[+] [+] [□]
Gujarati	[+]

Question 35:

Annual expenditure of a company in the year 2007-08 is given below:

Terms	Expenditure (in ₹ lakh)
Salaries of employees	65
Advertisement	10
Purchase of machinery	85
Electricity and water	15
Transportation	25
Other expenses	30

Prepare a pictograph of the above data using an appropriate symbol to represent Rs. 10 lakh.

Solution:

Rs. 10 lakh can be represented by[T] and Rs. 5 lakh can be represented by

For salaries of employees,

Rs. 65 lakh can be represented by 6 complete and 1 incomplete symbol.

For advertisement,

110 lakh can be represented by 1 complete symbol.

For purchase of machinery,

Rs. 85 lakh can be represented by 8 complete and 1 incomplete symbol.

For electricity and water,

Rs. 15 lakh can be represented by 1 complete and 1 incomplete symbol.

For transportation,

Rs. 25 lakh can be represented by 2 complete and 1 incomplete symbol.

For other expenses,

Rs. 30 lakh can be represented by 3 complete symbol.

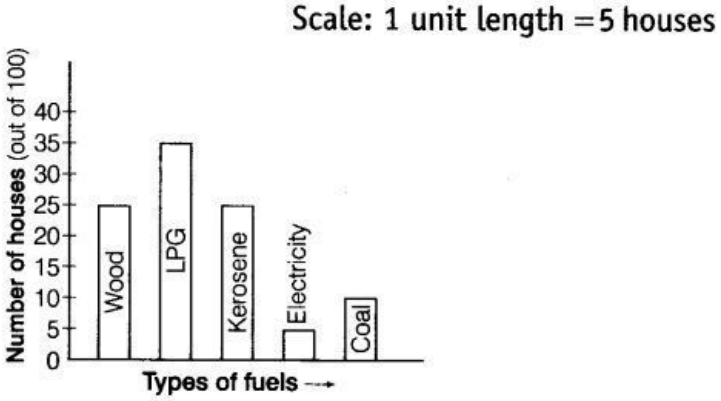
Hence, the required pictograph of given data is shown below, Take [T] =10 lakh and [f =5 lakh]

Take ₹ = 10 lakh and ₹ = 5 lakh

Terms	Expenditure (in ₹ lakh)
Salaries of employees	₹ ₹ ₹ ₹ ₹ ₹ ₹
Advertisement	₹
Purchase of machinery	₹ ₹ ₹ ₹ ₹ ₹ ₹ ₹ ₹
Electricity and water	₹ ₹
Transportation	₹ ₹ ₹
Other expenses	₹ ₹ ₹

Question 36:

The following bar graph shows the number of houses (out of 100) in a town using different types of fuels for cooking.



Read the bar graph and answer of the following questions:

(a) Which fuel is used in maximum number of houses?

(b) How many houses are using coal as fuel?

(c) Suppose that the total number of houses in the town is 1 lakh. From the above graph, estimate the number of houses using electricity.

Solution:

(a) On observing the bar graph, we can conclude that LPG is used in maximum number of houses.

(b) 10 houses out of 100 are using coal as fuel.

(c) Number of houses using electricity out of 100 =5 Number of houses using electricity out of 1 lakh

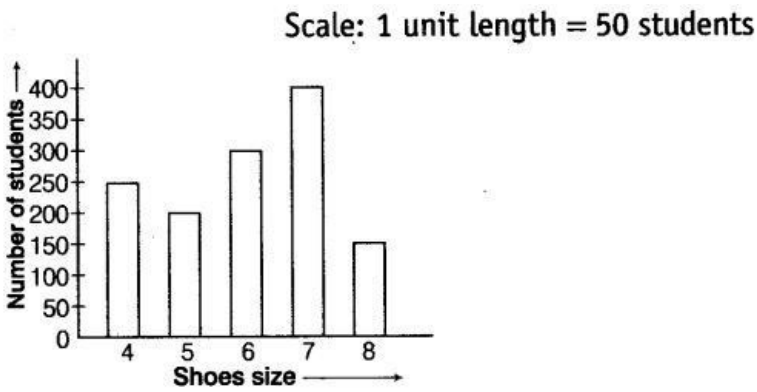
$$= \frac{5}{100} \times 1 \text{ lakh}$$

$$= \frac{5}{100} \times 100000$$

$$= 5000$$

Question 37:

The following bar graph represents the data for different sizes of shoes worn by the students in a school.



Read the graph and answer the following questions:

(a) Find the number of students whose shoes sizes have been collected.

(b) What is the number of students wearing shoe size 6?

(c) What are the different sizes of the shoes worn by the students?

(d) Which shoe size is worn by the maximum number of students?

(e) Which shoe size is worn by minimum number of students?

(f) State whether true or false:

The total number of students wearing shoe sizes 5 and 8 is the same as the number of students wearing shoe size 6.

Solution:

(a) Total number of students whose shoes sizes have been collected = 250 + 200 + 300 + 400+150= 1300

(b) Shoe size 6 is worn by 300 students.

(c) Different number of shoes worn by the students are 4, 5, 6, 7 and 8.

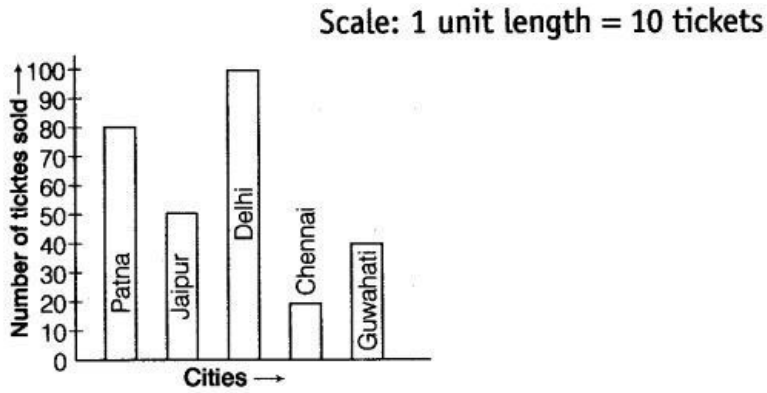
(d) Shoe number 7 is worn by maximum number of students.

(e) Shoe number 8 is worn by minimum number of students.

(f) False, since total 350 students wore shoe numbers 5 and 8, whereas only 300 students worn shoe number 6.

Question 38:

The following graph gives the information about the number of railway tickets sold for different cities on a railway ticket counter between 6.00 am to 10.00 am



Read the bar graph and answer the following questions:

(a) How many tickets were sold in all?

(b) For which city were the maximum number of tickets sold?

(c) For which city were the minimum number of tickets sold?

(d) Name the cities for which the number of tickets sold is more than 20.

(e) Fill in the blanks

Number of tickets sold for Delhi and Jaipur together exceeds the total number of tickets sold for Patna and Chennai by;

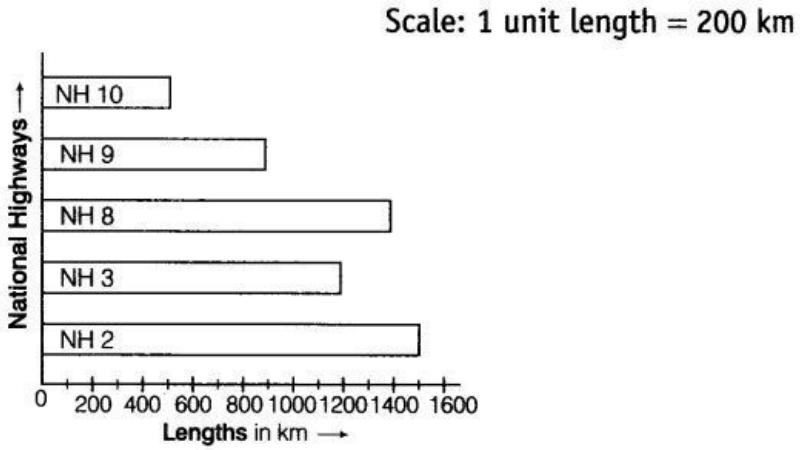
Solution:

(a) Total tickets sold = 80 + 50+ 100 + 20 + 40 = 290

(b) Maximum number of tickets were sold for Delhi, i.e. 100 tickets.
(c) Minimum number of tickets were sold for Chennai, i.e. 20 tickets.
(d) The cities for which the number of tickets sold is more than 20 are Patna, Jaipur, Delhi and Guwahati.
(e) Number of tickets sold for Delhi and Jaipur together = 100 + 50 = 150
and number of tickets sold for Patna and Chennai together = 80 + 20 = 100 Required difference = 150 -100 = 50

Question 39:

The bar graph given below represents approximate length (in km) of some national highways in India.



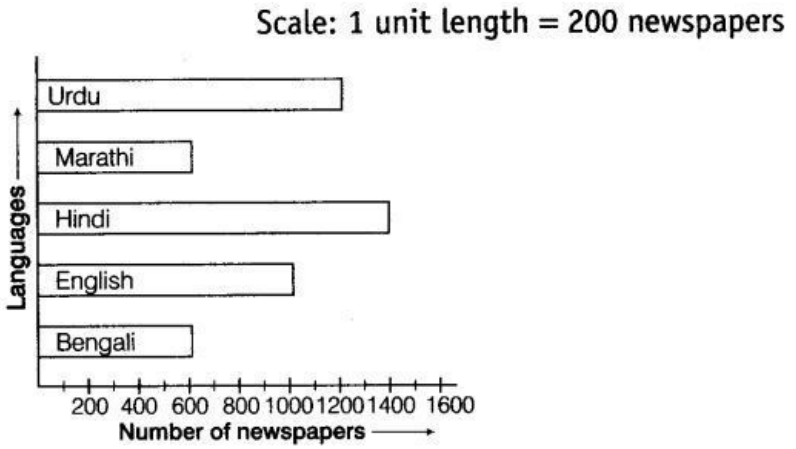
Study the bar graph and answer the following questions:
(a) Which National Highway (NH) is the longest among the above?
(b) Which National Highway is the shortest among the above?
(c) What is the length of National Highway 9?
(d) Length of which National Highway is about three times the National Highway 10?

Solution:

(a) National Highway 2 is the longest among the above shown highways. It is 1500 km long.
(b) National Highway 10 is the shortest among the above shown highways. It is 500 km long.
(c) The length of National Highway 9 is 900 km.
(d) Length of NH 10 = 500 km
Length of NH 9 = 900 km ‘
Length of NH 8 = 1400 km
Length of NH 3 = 1200 km and length of NH 2 = 1500 km
Clearly, the length of NH 2 is about three times the length of NH 10.

Question 40:

The bar graph below represents the circulation of newspapers in different languages in a town.



Study the bar graph and answer the following questions:

(a) What is the circulation of English newspaper?

(b) Name the two languages in which circulation of newspaper is the same.

(c) By how much is the circulation of newspaper in Hindi more than the newspaper in Bengali?

Solution:

(a) From the graph, we can observe that about 1000 English newspapers are in circulation.

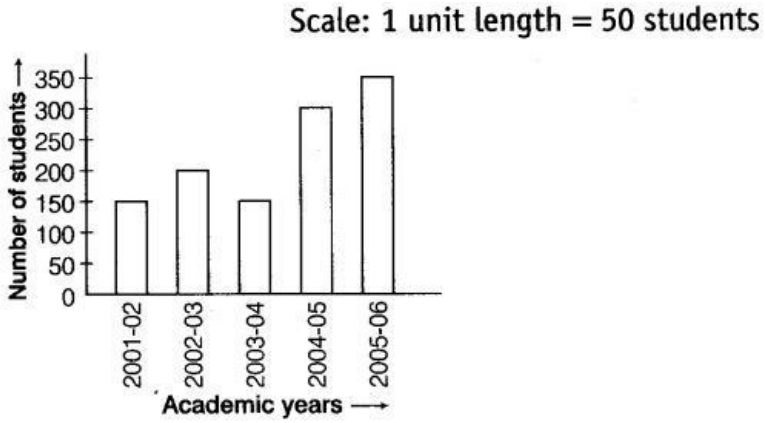
(b) Marathi and Bengali are the two languages in which circulation of newspapers is the same.

(c) Given, circulation of newspapers in Hindi = 1400 and circulation of newspapers in Bengali = 600 So, difference = 1400 – 600 = 800

The circulation of newspapers in Hindi is 800 more than the newspapers in Bengali.

Question 41:

Read the bar graph given below and answer the following questions.



(a) What information is given by the bar graph?

(b) In which year is the number of students maximum?

(c) In which year is the number of students twice as that of 2001-02?

(d) In which year did the number of students decreases as compared to previous year?

(e) In which year is the increases in number of students maximum as compared to the previous year?

Solution:

(a) The bar graph shows the information about the number of students in each academic year from 2001 to 2006.

(b) Given, number of students in 2001-02 = 150 Number of students in 2002-03 = 200 Number of students in 2003-04 = 150 Number of students in 2004-05 = 300 Number of students in 2005-06 = 350

The number of students was maximum in the academic year 2005-06.

(c) Clearly, the number of students in academic year 2004-05 is twice as that of 2001 -02.

(d) From the graph, we can observe that, the number of students decreased to 150 in 2003-04 from 200 of previous year 2002-03.

(e) In the year 2004-05, the increase in number of students is maximum as compared to the previous year.

Question 42:

The lengths in km (rounded to nearest hundred) of some major rivers of India is given below:

River	Length (in km)
Narmada	1300
Mahanadi	900
Brahmputra	2900
Ganga	2500
Kaveri	800
Krishna	1300

Draw a bar graph to represent the above information.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

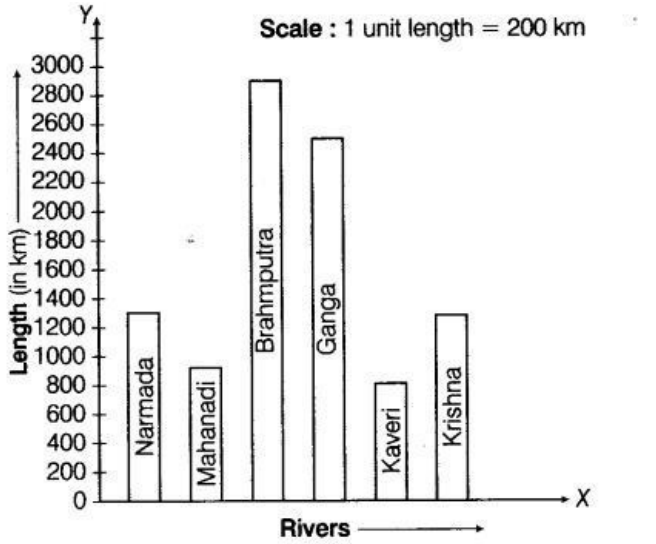
Step II Along OX, mark river's name and along OY, mark length in kilometres.

Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 200 km.

Hence, the required bar graph of given data is shown below

Name of the river	Height of bars
Narmada	$\frac{1300}{200} = 6.5$ units
Mahanadi	$\frac{900}{200} = 4.5$ units
Brahmputra	$\frac{2900}{200} = 14.5$ units
Ganga	$\frac{2500}{200} = 12.5$ units
Kaveri	$\frac{800}{200} = 4$ units
Krishna	$\frac{1300}{200} = 6.5$ units



Question 43:

The number of ATMs of different banks in a city is shown below:

Bank	Number of ATMs
Syndicate Bank	5
Dena Bank	15
Indian Bank	20
State Bank of India	25
Vijaya Bank	10

Draw a bar graph to represent the above information by choosing the scale of your choice.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

Step II Along OX, mark bank names and along OY, mark number of ATMs.

Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

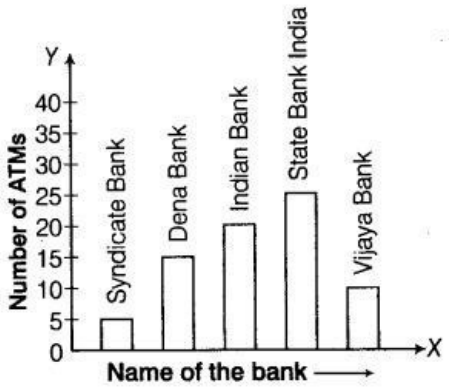
Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 5 ATMs.

Step V Calculate the height of various bars as follows:

Bank	Height of bars
Syndicate Bank	$\frac{5}{5} = 1$ unit
Dena Bank	$\frac{15}{5} = 3$ units
Indian Bank	$\frac{20}{5} = 4$ units
State Bank of India	$\frac{25}{5} = 5$ units
Vijaya Bank	$\frac{10}{2} = 2$ units

Hence, the required bar graph of given data is shown below

Scale : 1 unit length = 5 ATMs



Question 44:

Number of mobile phone users in various age groups in a city is listed below:

Age group (in years)	Number of mobile users
1-20	25000
21-40	40000
41-60	35000
61-80	10000

Draw a bar graph to represent the above information.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

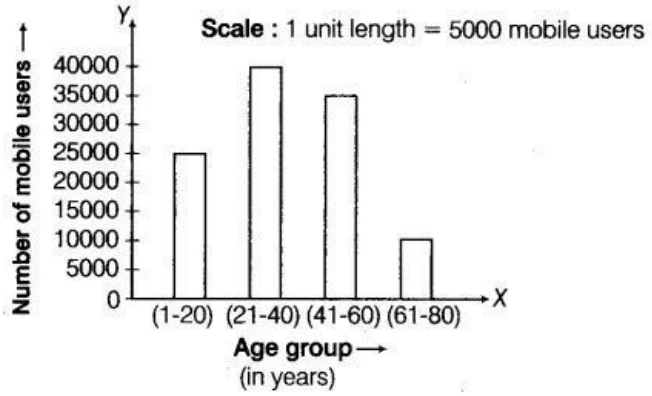
Step II Along OX, mark age groups and along OY, mark number of mobile users.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 5000 mobile users.

Step V Calculate the height of various bars as follows

Age group	Height of bars
(1-20) years	$\frac{25000}{5000} = 5$ units
(21-40) years	$\frac{40000}{5000} = 8$ units
(41-60) years	$\frac{35000}{5000} = 7$ units
(61-80) years	$\frac{10000}{5000} = 2$ units

Hence, the required bar graph of given data is shown below



Question 45:

The following table gives the number of vehicles passing through a toll gate, every hour from 8.00 am to 1.00 pm:

Time interval	8.00 to 9.00	9.00 to 10.00	10.00 to 11.00	11.00 to 12.00	12.00 to 1.00
Number of vehicles	250	450	300	250	150

Draw a bar graph representing the above data.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and Oy. Let OX as the horizontal axis and OY as the vertical axis.

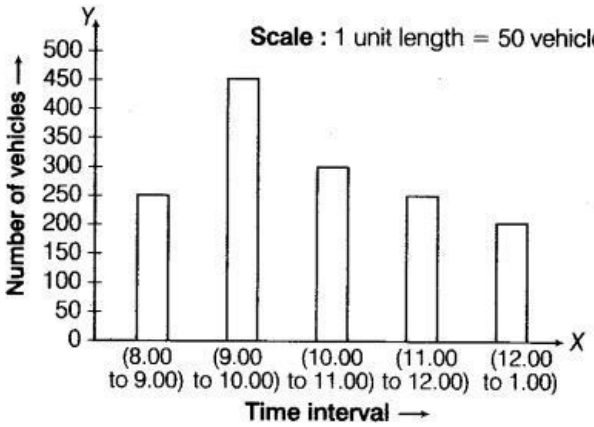
Step II Along OX, mark time interval and along OY, mark number of vehicles.

Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 50 vehicles.

Time interval	Height of bars
8.00 to 9.00	$\frac{250}{50} = 5$ units
9.00 to 10.00	$\frac{450}{50} = 9$ units
10.00 to 11.00	$\frac{300}{50} = 6$ units
11.00 to 12.00	$\frac{250}{50} = 5$ units
12.00 to 1.00	$\frac{150}{50} = 3$ units

Hence, the required bar graph for the given data is shown below



Question 46:

The following table represent income of a Gram Panchayat from different

Sources	Income (in ₹)
Income from local taxes	75000
Funds received from government	150000
Donations	25000
Income from other resources	50000

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

Step II Along OX, mark sources and along OY, mark income.

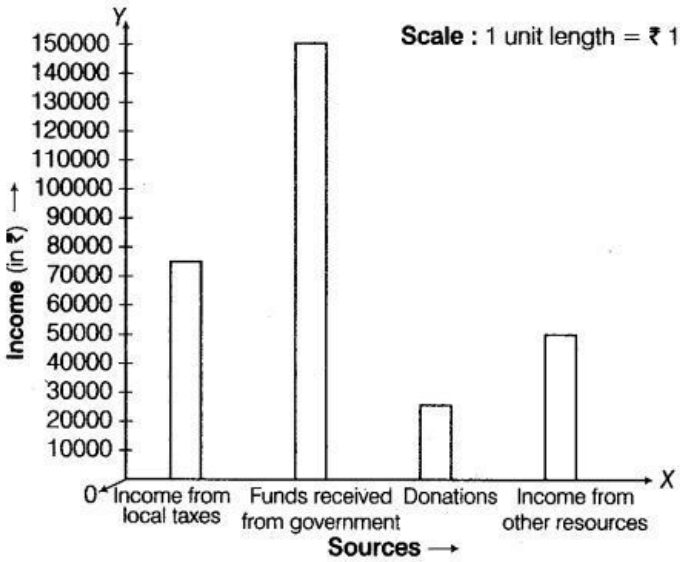
Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of spate. Here, we choose 1 unit length to represents Rs. 10000.

Step V Calculate the various bars as follows:

Sources	Height of bars
Income from local taxes	$\frac{75000}{10000} = 7.5$ units
Funds received from government	$\frac{150000}{10000} = 15$ units
Donations	$\frac{25000}{10000} = 2.5$ units
Income from other resources	$\frac{50000}{10000} = 5$ units

Hence,the required bar graph for the given data is shown below



Question 47:

The following table gives the data of number of schools (stage-wise) of a country in the year 2002.

Stage	Number of schools (in thousands)
Primary	80
Upper Primary	55
Secondary	30
Higher Secondary	20

Draw a bar graph to represent the above data.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OXX. Let OX as the horizontal axis and OY as the vertical axis.

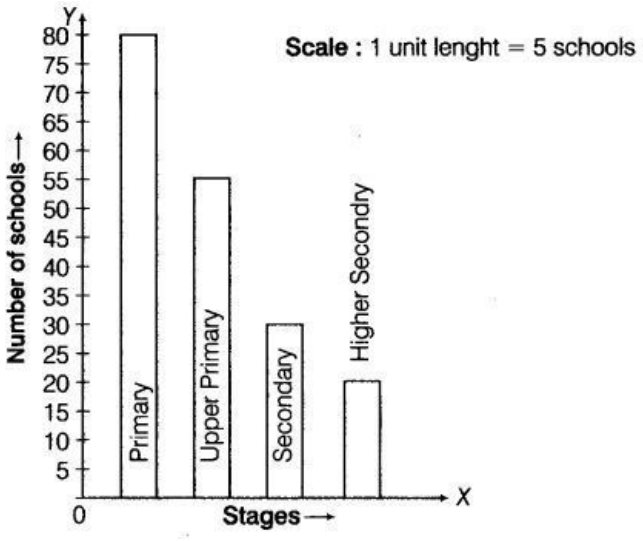
Step II Along OX, mark stages and along OY, mark number of schools.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 5 schools.

Step V Calculate the height of various bars as follows

Stage	Height of bars
Primary	$\frac{80}{5} = 16$ units
Upper Primary	$\frac{55}{5} = 11$ units
Secondary	$\frac{30}{5} = 6$ units
Higher Secondary	$\frac{20}{5} = 4$ units

Hence, the required bar graph for the given data is shown below



Question 48:

Home appliances sold by a shop in one month are given as below:

Home appliance	Number of home appliances
Refrigerator	75
Televisions	45
Washing machine	30
Cooler	60
DVD player	30

Draw a bar graph to represent the above information.

Solution:

In order to draw a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

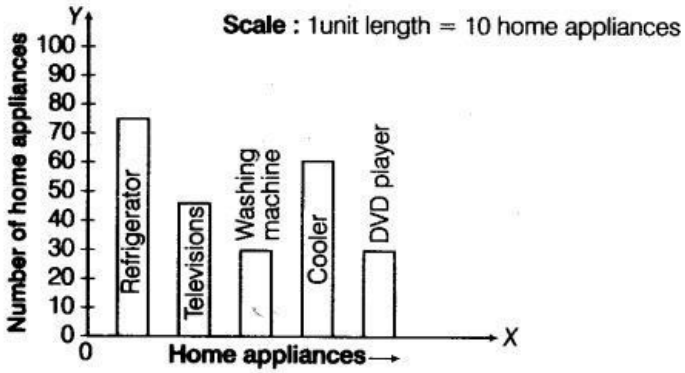
Step II Along OX, mark of home appliances and along OY, mark number of appliances.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 10 home appliances.

Step V Calculate the height of various bars as follows

Home appliance	Height of bars
Refrigerator	$\frac{75}{10} = 7.5$ units
Televisions	$\frac{45}{10} = 4.5$ units
Washing machine	$\frac{30}{10} = 3$ units
Cooler	$\frac{60}{10} = 6$ units
DVD player	$\frac{30}{10} = 3$ units

Hence, the required bar graph for the given data is shown below



Question 49:

In a botanical garden, the number of different types of plants are founds as follows:

Type of the plant	Number of plants
Herb	50
Shrub	60
Creeper	20
Climber	45
Tree	95

Draw a bar graph to represent the above information and answer the following questions:

(a) Which type of plant is maximum in number in the garden?

(b) Which type of plant is minimum in number in the garden?

Solution:

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and Oy. Let OX as the horizontal axis and OY as the vertical axis.

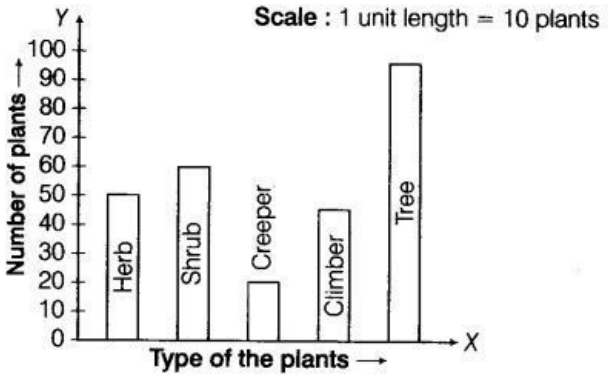
Step II Along OX, mark type of the plant and along OY, mark number of plants.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 10 plants.

Step V Calculate the height of various bars as follows

Type of the plant	Height of bars
Herb	$\frac{50}{10} = 5$ units
Shrub	$\frac{60}{10} = 6$ units
Creeper	$\frac{20}{10} = 2$ units
Climber	$\frac{45}{10} = 4.5$ units
Tree	$\frac{95}{10} = 9.5$ units

Hence, the required bar graph for the given data is shown below



(a) On studying bar graph, tree is maximum in number in the garden.

(b) On studying bar graph, creeper plants is minimum in number in the garden.

Question 50:

Prepare a bar graph of the data given in question 28.

Solution:

In order to construct a bar graph, first we have to make a table representing the pictograph in tabular form of question 28.

Surname	Number of people
Khan	350
Patel	500
Rao	400
Roy	400
Saikia	200
Singh	300

In order to construct a bar graph representing the above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

Step II Along OX, mark surname and along OY, mark number of people.

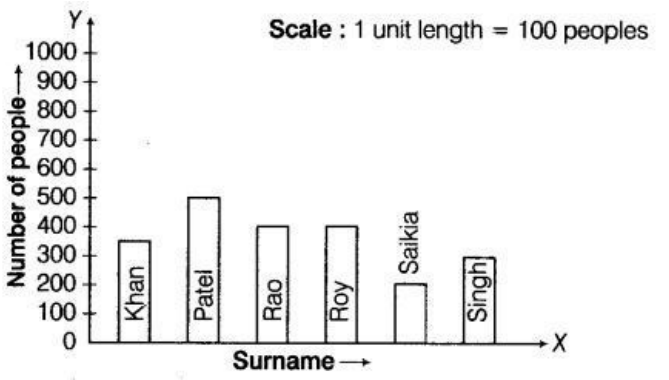
Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Here, we choose 1 unit length represents 100 people.

Step V Calculate the height of various bars as follows

Surname	Height of bars
Khan	$\frac{350}{100} = 3.5$ units
Patel	$\frac{500}{100} = 5$ units
Rao	$\frac{400}{100} = 4$ units
Roy	$\frac{400}{100} = 4$ units
Saikia	$\frac{200}{100} = 2$ units
Singh	$\frac{300}{100} = 3$ units

Hence, the required bar graph for the given data is shown below



Question 51:

Refer to question 39. Prepare a pictograph of the data by taking a suitable symbol to represent 200 km.

Solution:

Let 200 km can be represented by NH and 100 km represented by N.

For NH 10,

500 km can be represented by 2 complete symbols and 1 incomplete symbol.

For NH 9,

900 km can be represented by 4 complete symbols and 1 incomplete symbol.

For NH 8,

1400 km can be represented by 7 complete symbols.

For NH 3,

1200 km can be represented by 6 complete symbols.

For NH 2,

1500 km can be represented by 7 complete symbols and 1 incomplete symbol.

Hence, the required pictograph of given data is shown below

Take, NH = 200 km and N = 100 km

National Highway	Length (in km)
NH 10	NH NH N
NH 9	NH NH NH NH N
NH 8	NH NH NH NH NH NH NH
NH 3	NH NH NH NH NH NH
NH 2	NH NH NH NH NH NH NH N

Question 52:

Prepare a pictograph of the information given in question 38.

Solution:

10 tickets can be represented by □.

For Patna,

80 tickets can be represented by 8 symbols.

For Jaipur,

50 tickets can be represented by 5 symbols.

For Delhi,

100 tickets can be represented by 10 symbols.

For Chennai,

20 tickets can be represented by 2 symbols.

For Guwahati,

40 tickets can be represented by 4 symbols.

Hence, the required pictograph of given data is shown below

Take, ☐ = 10 tickets

Cities	Number of tickets sold
Patna	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Jaipur	☐ ☐ ☐ ☐ ☐
Delhi	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Chennai	☐ ☐
Guwahati	☐ ☐ ☐ ☐

Question 53:

Refer to question 23. Prepare a bar graph of the data.

Solution:

In order to construct a bar graph representing the above data, we follow the following steps: ,

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

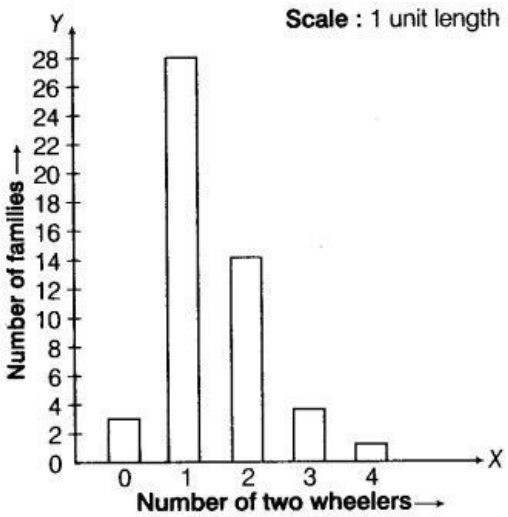
Step II Along OX, mark number of two wheelers and along OY, mark number of families.

Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step V Calculate the height of various bars as follows

Number of two wheelers	Height of bars
0	$\frac{3}{1} = 1.5$ units
1	$\frac{28}{2} = 14$ units
2	$\frac{14}{2} = 7$ units
3	$\frac{4}{2} = 2$ units
4	$\frac{1}{2} = 0.5$ units

Hence, the required bar graph for the given data is shown below



Question 54:

The following table shows the area of the land on which different crops were grown:

Crop	Area of land (in million hectares)
Rice	50
Wheat	30
Pulses	20
Sugarcane	25
Cotton	15

Prepare a pictograph by choosing a suitable symbol to represent 10 million hectares.

Solution:

5 million hectares can be represented by ill symbol.

For rice,

50 million hectares can be represented by 10 symbols.

For wheat,

30 million hectares can be represented by 6 symbols.

For pulses,

20 million hectares can be represented by 4 symbols.

For sugarcane,

25 million hectares can be represented by 5 symbols.

For cotton,

15 million hectares can be represented by 3 symbols.

Hence, the required pictograph of the given data is shown below

Take, ▭ = 5 million hectares

Crop	Area of land
Rice	▭▭▭▭▭▭▭▭▭▭
Wheat	▭▭▭▭▭▭
Pulses	▭▭▭▭
Sugarcane	▭▭▭▭▭
Cotton	▭▭▭

Question 55:

Refer to question 54. Prepare a bar graph of the data.

Solution:

In order to construct a bar graph representing above data, we follow the following steps:

Step I Take a graph paper and draw two mutually perpendicular lines OX and OY. Let OX as the horizontal axis and OY as the vertical axis.

Step II Along OX, mark crop and along OY, mark area of the land.

Step III Along OX, choose the uniform (equal) width of the bars and the uniform gap between them, according to the space available for the graph.

Step IV Choose a suitable scale to determine the heights of the bars, according to the availability of space. Flere, we choose 1 unit length to represents 5 million hectares.

Step V Calculate the heights of various bars as follows

Crop	Height of bars
Rice	$\frac{50}{2} = 10$ units
Wheat	$\frac{30}{5} = 6$ units
Pulses	$\frac{20}{5} = 4$ units
Sugarcane	$\frac{25}{5} = 5$ units
Cotton	$\frac{15}{5} = 3$ units

Hence, the required bar graph of the given data is shown below