22. Data Handling

EXERCISE 22 (A)

Question 1.
Arrange the following data as an array (in ascending order):
(i) 7, 5, 15, 12, 10, 11, 16
(ii) 6.3, 5.9, 9.8, 12.3, 5.6, 4.7
Solution:
(i) Ascending order = 5, 7, 10, 11, 12, 15, 16
(ii) Ascending order = 4.7, 5.6, 5.9, 6.3, 9.8, 12.3

Question 2.
Arrange the following data as an array (descending order):
(i) 0 2, 0, 3, 4, 1, 2, 3, 5
(ii) 9.1, 3.7, 5.6, 8.3, 11.5, 10.6
Solution:
(i) Descending order = 5, 4, 3, 3, 2, 2, 1, 0
(ii) Descending order = 11.5, 10.6, 9.1, 8.3, 5.6, 3.7

Question 3.
Construct a frequency table for the following data:
(i) 6, 7, 5, 6, 8, 9, 5, 5, 6, 7, 8, 9, 8, 10, 10, 9, 8, 10, 5, 7, 6, 8.
(ii) 3, 2, 1, 5, 4, 3, 2, 5, 5, 4, 2, 2, 2, 1, 4, 1, 5, 4.
Solution:
(i)

Data	Tally Marks	Frequency
5	||||	4
6	||||	4
7	|||	3
8	𝍸	5
9	|||	3
10	|||	3

(ii)

Data	Tally Marks	Frequency
1	|||	3
2	𝍸	5
3	||	2
4	||||	4
5	||||	4

Question 4.

Following are the marks obtained by 30 students in an examinations.

15	20	8	9	10
16	17	20	24	30
44	47	38	36	40
27	25	28	30	19
7	11	21	31	41
37	47	23	20	17

Taking class intervals 0-10, 10-20, …… 40-50 ; construct a frequency table.

Solution:

Class Intervals	Tally Marks	Frequency
0 – 10	|||	3
10 – 20	𝍸 ||	7
20 – 30	𝍸 ||||	9
30 – 40	𝍸 |	6
40 - 50	𝍸	5

Question 5.

Construct a frequency distribution table for the following data ; taking class-intervals 4-6, 6-8, …… 14-16.

11·5 6·3 7·8 9·2 10·5 4·5, 6 8·3 12·5 15·8

7·4 5·3 8·4 15·2 8·9 9·8 8·25 6·5 5·8 10·5

4·6 6·4 8·9 10·8 12·7 14·2 15·3 11·7 9·9 8·8

6·6 4·3 4·7 9·4 10·1 15·5 14·4 12·2 7·7 5·5

Solution:

Class Intervals	Tally Marks	Frequency
4–6	𝍸 ||	7
6–8	𝍸 |||	8
8–10	𝍸 𝍸	10
10–12	𝍸 |	6
12–14	|||	3
14–16	𝍸 |	6

Question 6.

Fill in the blanks:

(i) Lower class limit of 15-18 is ……

(ii) Upper class limit of 24-30 is ……..

(iii) Upper limit of 5-12.5 is ……

(iv) If the upper and the lower limits of a class interval are 16 and 10 ; the class-interval is ……..

(v) If the lower and the upper limits of a class interval are 7.5 and 12.5 ; the class interval is ……..

Solution:

(i) Lower class limit of 15 – 18 is **15.**

(ii) Upper class limit of 24 – 30 is **30.**

(iii) Upper limit of 5 – 12.5 is **12.5**

(iv) If the upper and lower limits of a class interval are 16 and 10 ; the class interval is **10 – 16**

(v) If the lower and upper limits of a class interval are 7.5 and 12.5 ; the class interval is **7.5 – 12.5**

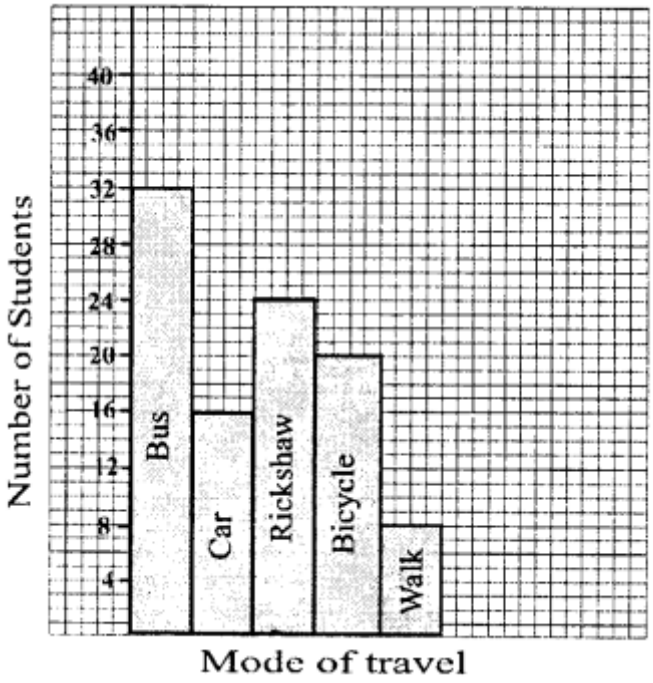
EXERCISE 22 (B)

Question 1.

Hundred students from a certain locality use different modes of travelling to school as given below. Draw a bar graph.

Bus	Car	Rickshaw	Bicycle	Walk
32	16	24	20	8

Solution:

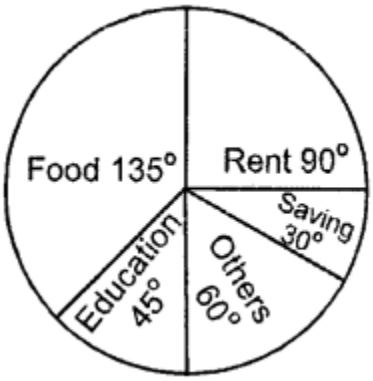


Question 2.

Mr. Mirza's monthly income is Rs. 7,200. He spends Rs. 1,800 on rent, Rs. 2,700 on food, Rs. 900 on education of his children ; Rs. 1,200 on Other things and saves the rest.

Draw a pie-chart to represent it.

Solution:



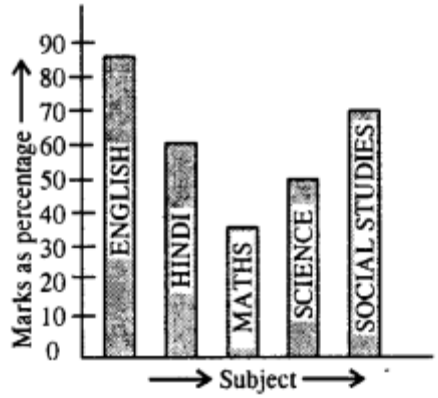
Name of items	Expenditure/Saving in Rupees	Central angle
Rent	1800	$\frac{1800}{7200}\times 360^{O} = 90^{O}$
Food	2700	$\frac{2700}{7200}\times 360^{O} = 135^{O}$
Education	900	$\frac{900}{7200}\times 360^{O} = 45^{O}$
Others	1200	$\frac{1200}{7200}\times 360^{O} = 60^{O}$
Saving	600	$\frac{600}{7200}\times 360^{O} = 30^{O}$
Total	7200	360^{O}

Question 3.

The percentage of marks obtained, in different subjects by Ashok Sharma (in an examination) are given below. Draw a bar graph to represent it.

English	Hindi	Maths	Science	Social Studies
85	60	35	50	70

Solution:



Question 4.

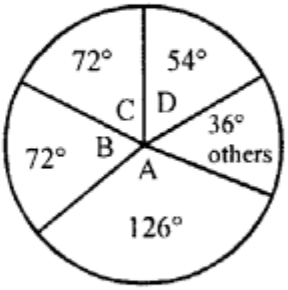
The following table shows the market position of different brand of tea-leaves.

Brand	A	B	C	D	others
% Buyers	35	20	20	15	10

Draw it-pie-chart to represent the above information.

Solution:

Name of brand	% Buyers	Central angle
A	35	$\frac{35}{100} \times 360° = 126°$
B	20	$\frac{20}{100} \times 360° = 72°$
C	20	$\frac{20}{100} \times 360° = 72°$
D	15	$\frac{15}{100} \times 360° = 54°$
Others	10	$\frac{10}{100} \times 360° = 36°$
	100	360°



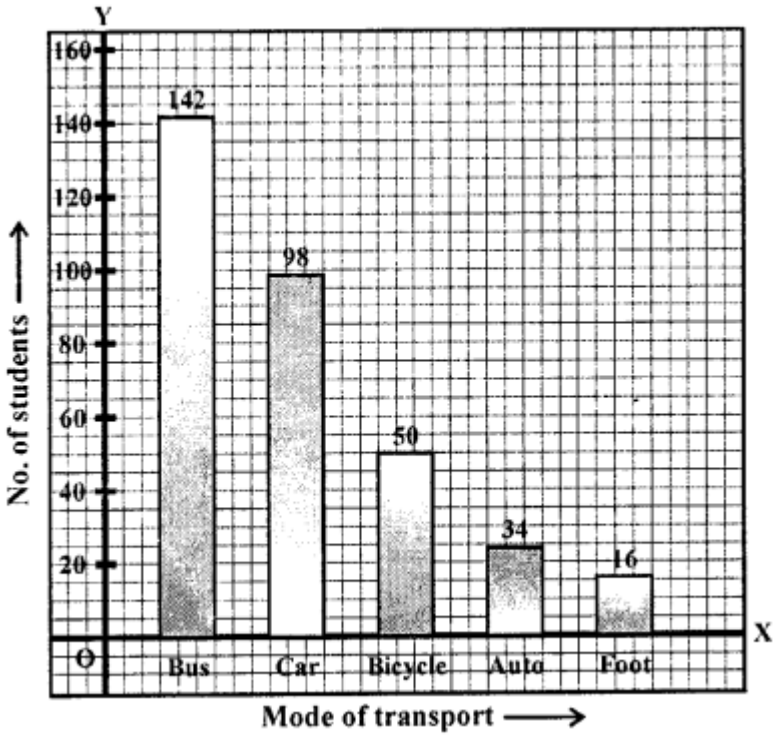
Question 5.

Students of a small school use different modes of travel to school as shown below:

Mode	Bus	Car	Bicycle	Auto	On foot
No. of students	142	98	50	34	16

Draw a suitable bar graph.

Solution:

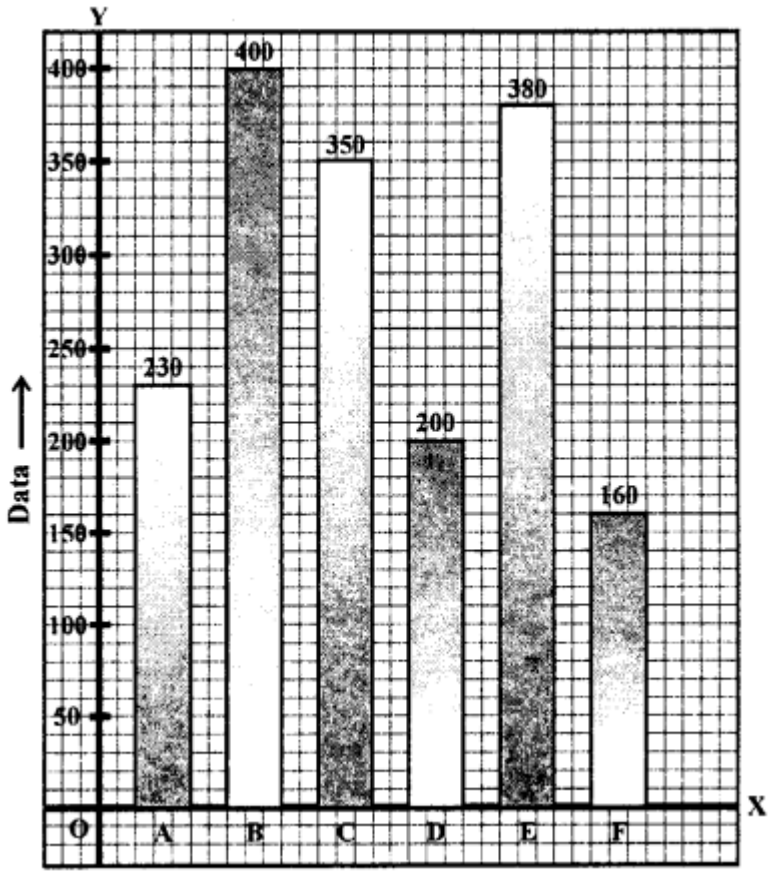


Question 6.

For the following table, draw a bar-graph

A	B	C	D	E	F
230	400	350	200	380	160

Solution:



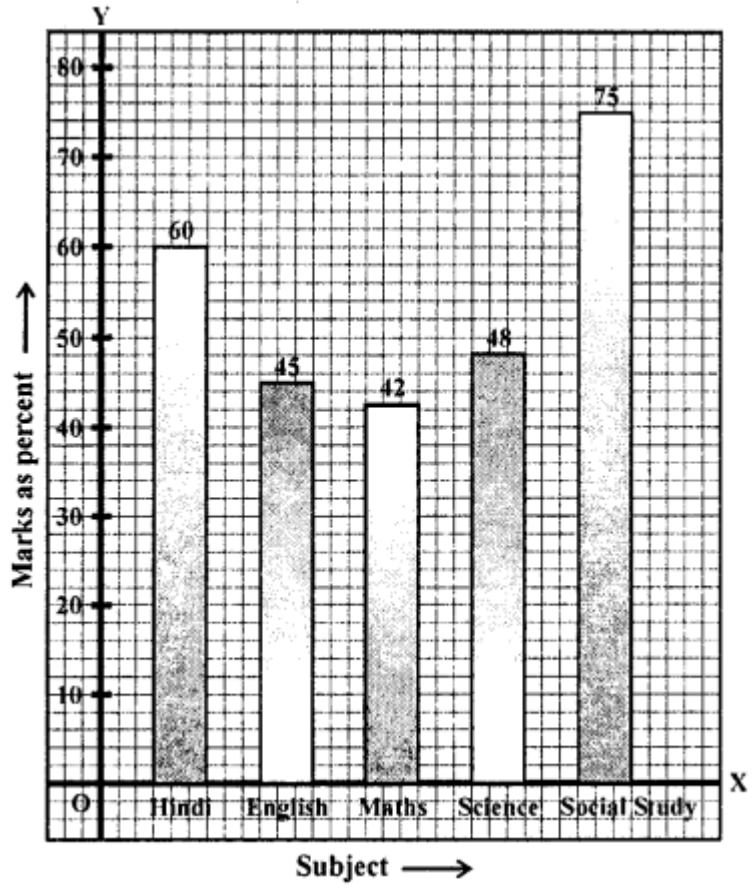
Question 7.

Manoj appeared for ICSE examination 2018 and secured percentage of marks as shown in the following table:

Subject	Hindi	English	Maths	Science	Social Study
Marks as percent	60	45	42	48	75

Represent the above data by drawing a suitable bar graph.

Solution:



Question 8.

For the data given above in question number 7, draw a suitable pie-graph.

Solution:

∵ 60 + 45 + 42 + 48 + 75 = 270

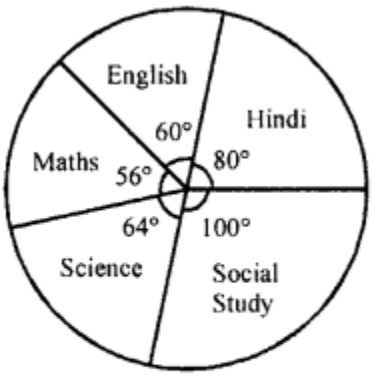
$\therefore$ Central angle for Hindi $= \frac{60}{270} \times 360° = 80°$

Central angle for English $= \frac{45}{270} \times 360° = 60°$

Central angle for Maths $= \frac{42}{270} \times 360° = 45°$

Central angle for Science $= \frac{48}{270} \times 360° = 64°$

and Central angle for Social study $= \frac{75}{270} \times 360° = 100°$

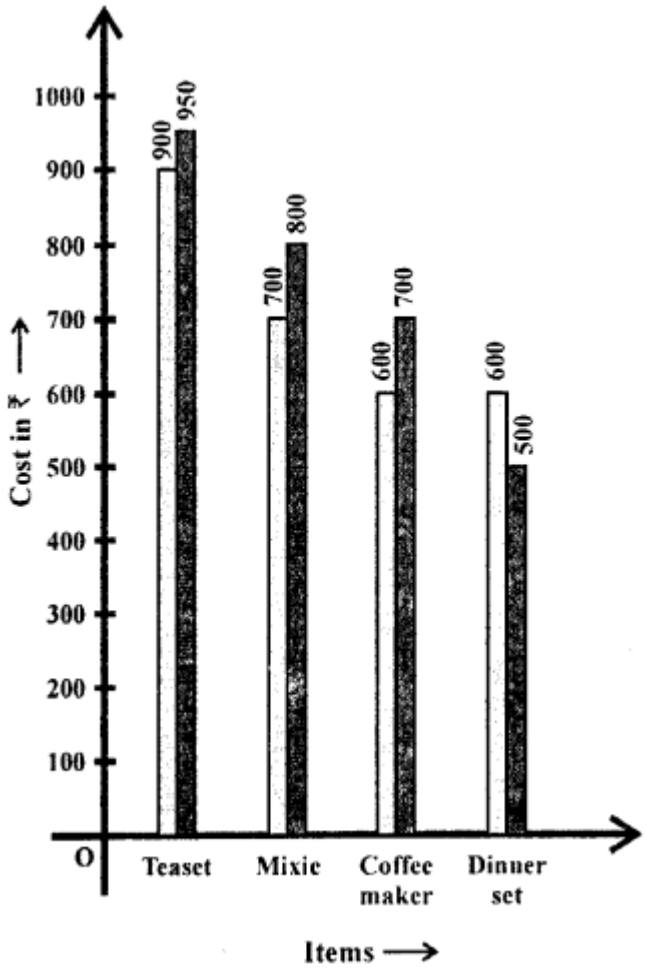


Question 9.

Mr. Kapoor compares the prices (in Rs.) of different items at two different shops A and B. Examine the following table carefully and represent the data by a double bar graph.

Items	Price (in ₹) at shop A	Price (in ₹) at Shop B
Tea-set	900	950
Mixie	700	800
Coffee-maker	600	700
Dinner set	600	500

Solution:



Question 10.

The following tables shows the mode of transport used by boys and girls for going to the same school.

	Bus	Bicycle	Walking	Other sources
Number of boys	80	60	20	85
Number of girls	90	75	35	60

Draw a double bar graph representing the above data.

Solution: