third column we

Obtain the frequency.

Example

From a discrete frequency table from the following example of the number of refrigerators sold on 22 working days by a leading agency.

23, 30, 20, 26, 30, 30, 20, 23, 40, 26, 40

20, 23, 40, 28, 26, 23, 30, 40, 28, 28, 30

Variable (x) No. of refrigerators	Tally marks	Frequency (F) Identify days
20	III	3
23	IIII	4
26	III	3
28	III	3
30	~~IIII~~	5
40	IIII	4
		22

Example: The profits (in lakhs) of 30 companies for the year 1989-1990 are given:-

16, 20, 22, 35, 42, 37, 42, 48, 53, 49, 65, 39, 48
67, 18, 23, 37, 35, 49, 63, 65, 55, 45, 58, 57, 69, 25
29, 58, 65.

Classify the above data by taking a suitable class interval.

Sol:

Largest value = 69

Smallest value = 16

Let us take the number of classes to be 5

$$i = \frac{\text{Largest value} - \text{Smallest value}}{\text{No. of classes}}$$

$$= \frac{69-16}{5} = \frac{53}{5} = 10.06 = 10$$

Lowest value = 16, so let us take the lower limit of the first class to be 15.

Variable (x) Profits (in lakhs)	Tally marks	Frequency (f) No. of companies
15 - 25	𝍸	5
25 - 35	||	2
35 - 45	𝍸 ||	7
45 - 55	𝍸 |	6
55 - 65	𝍸	5
65 - 75	𝍸	5 / 30

Collection.	percentages, coefficients, etc..

EXAMPLE 1: In a survey of 50 families in a village the number of children per family was recorded and the following data is obtained :-

1, 0, 3, 8, 5, 9, 0, 3, 0, 3, 4, 1, 2, 4, 3, 2, 8, 0, 0, 2
6, 3, 4, 1, 0, 9, 7, 2, 1, 2, 1, 2, 3, 4, 5, 6, 5, 3, 1, 1, 4
5, 4, 2, 9, 7, 8, 0, 4, 3

Represent the data in the form of a discrete frequency table:

Sol:

No. of children	Tally marks	Frequency No. of families
0	HH II	7
1	HH II	7
2	HH II	7
3	HH III	8
4	HH II	7
5	IIII	4
6	II	2
7	II	2
8	III	3
9	III	3
	Total	50

Example 2: Give below are the marks of 30 students in examination:-

27, 29, 03, 23, 30, 40, 11, 48, 01, 15, 35, 40, 32, 12, 48
41, 32, 13, 25, 44, 07, 43, 25, 22, 19, 18, 30, 24, 02, 29

Make a continuous frequency table under inclusive type.

Solution

Largest value = 48

Smallest value = 1

Number of classes = 5

$$i = \frac{\text{Largest value} - \text{Smallest value}}{\text{No. of classes}}$$

$$= \frac{48-1}{5} = \frac{47}{5} = 9.4 = 10$$

Class Internal Marks	Tally Marks	Frequency No. of Students
0 - 9	1111	4
10 - 19	𝍸 1	6
20 - 29	𝍸 111	8
30 - 39	𝍸	5
40 - 49	𝍸 11	7
	Total	30

Example : 3

From the following observations prepare a classified frequency distribution :-

120, 148, 110, 108, 126, 132, 149, 136, 140, 125
119, 111, 154, 147, 165, 137, 125, 112, 138, 155
125, 138, 136, 130, 145, 132, 150, 137, 142, 135, 125, 126

Largest Value = 165

Smallest Value = 108

Number of classes = 6

$$i = \frac{165 - 108}{6} = \frac{57}{6} = 9.5 = 10$$

We shall start the first class from 100 - 110

Class Interval	Tally marks	Frequency
100 - 110	I	1
110 - 120	IIII	4
120 - 130	~~IIII~~ II	7
130 - 140	~~IIII~~ ~~IIII~~	10
140 - 150	~~IIII~~ I	6
150 - 160	III	3
160 - 170	I	1
	Total	32

DIAGRAMATIC REPRESENTATION:

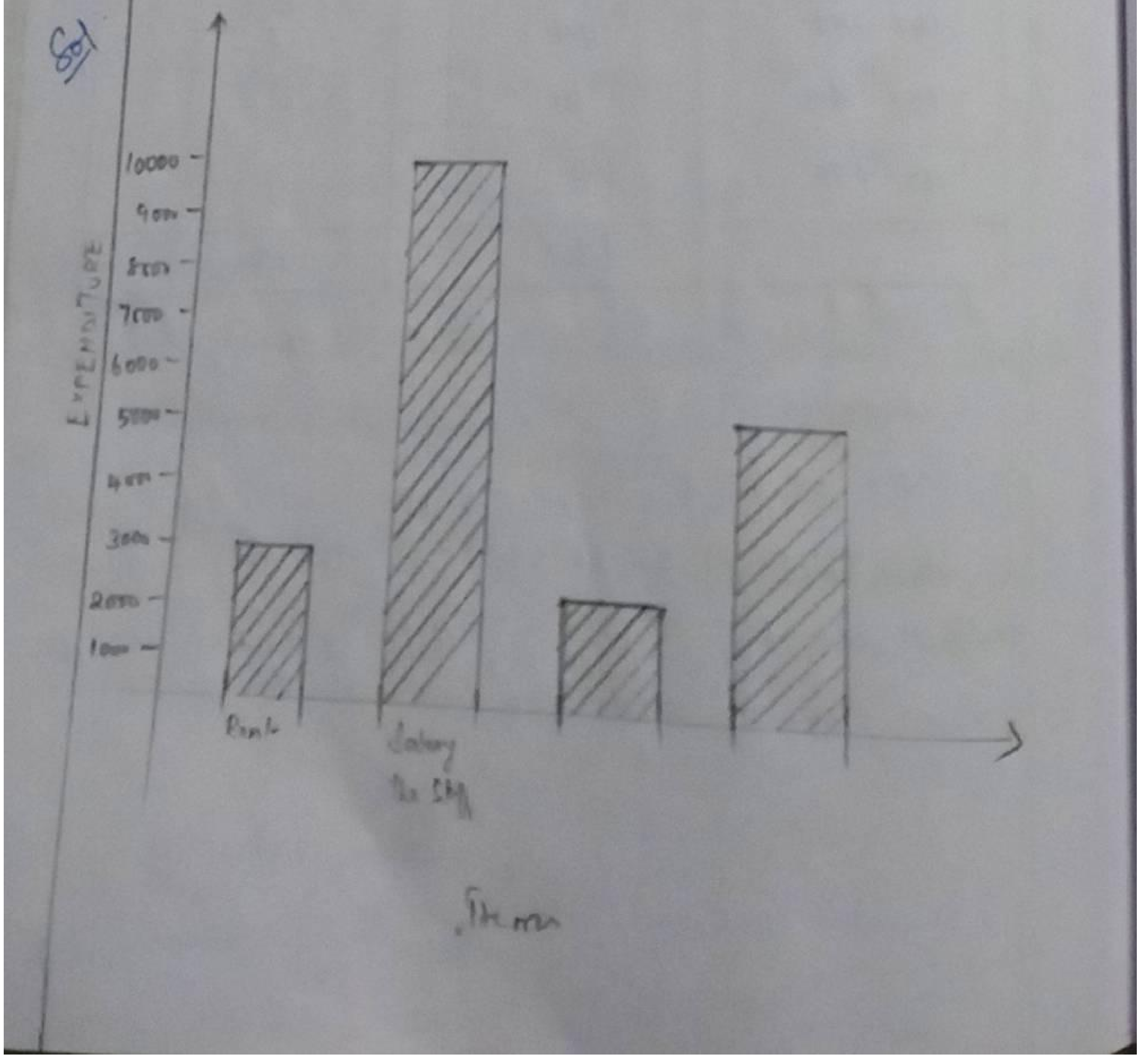
Example 2:

Following table shows the monthly expenditure of a firm.

Item	Rent	Salary of the staff	Electricity	miscellaneous
Expenditure	Rs: 3,000	Rs 10,000	Rs. 2000	Rs 5,500

Represent the above data by a simple bar diagram.

Sol

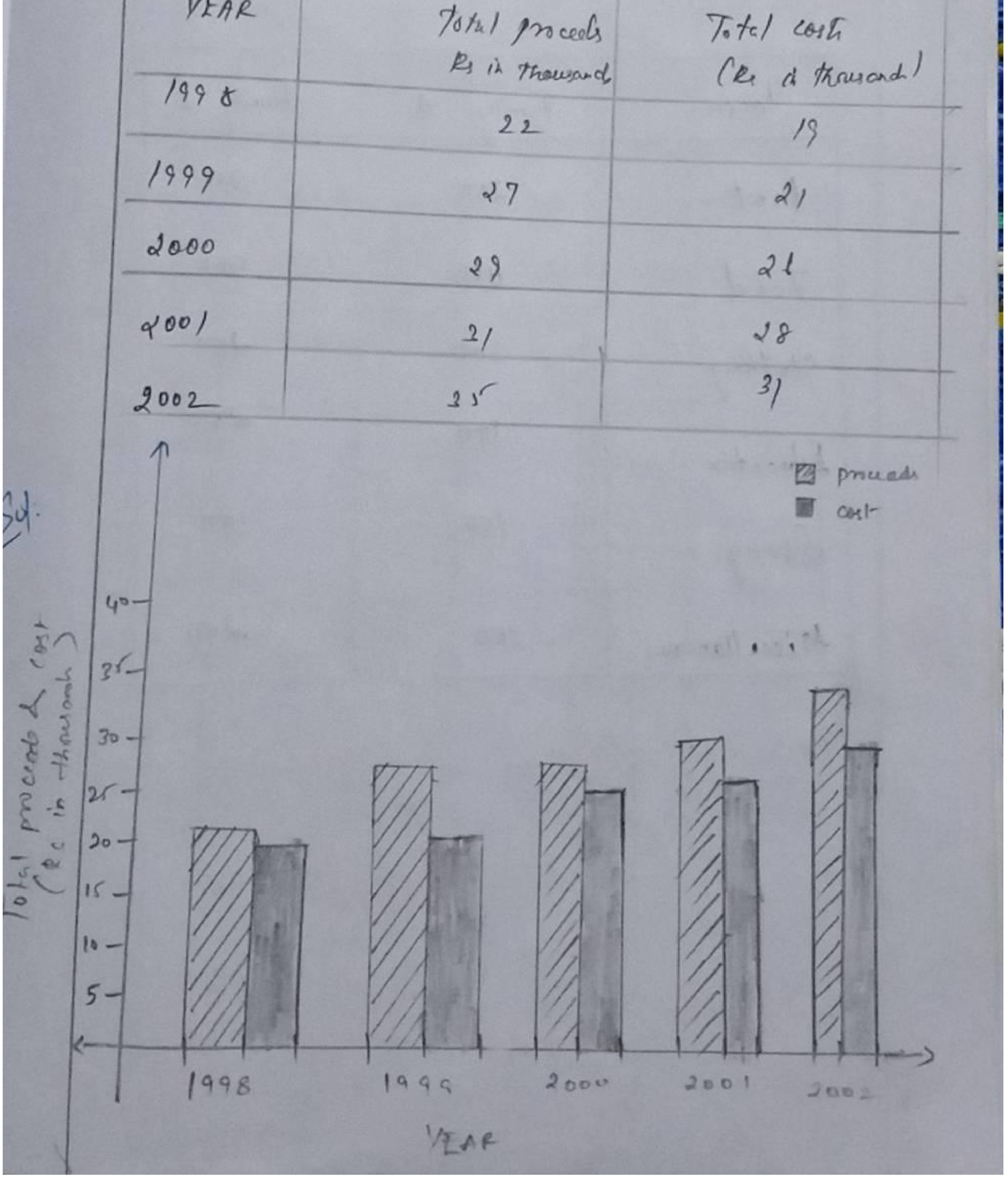


Example 2:

Represent the following data by a suitable diagram showing the difference between proceeds and cost :-

YEAR	Total proceeds (Rs in thousand)	Total costs (Rs in thousand)
1998	22	19
1999	27	21
2000	29	21
2001	21	28
2002	35	31

Sol:

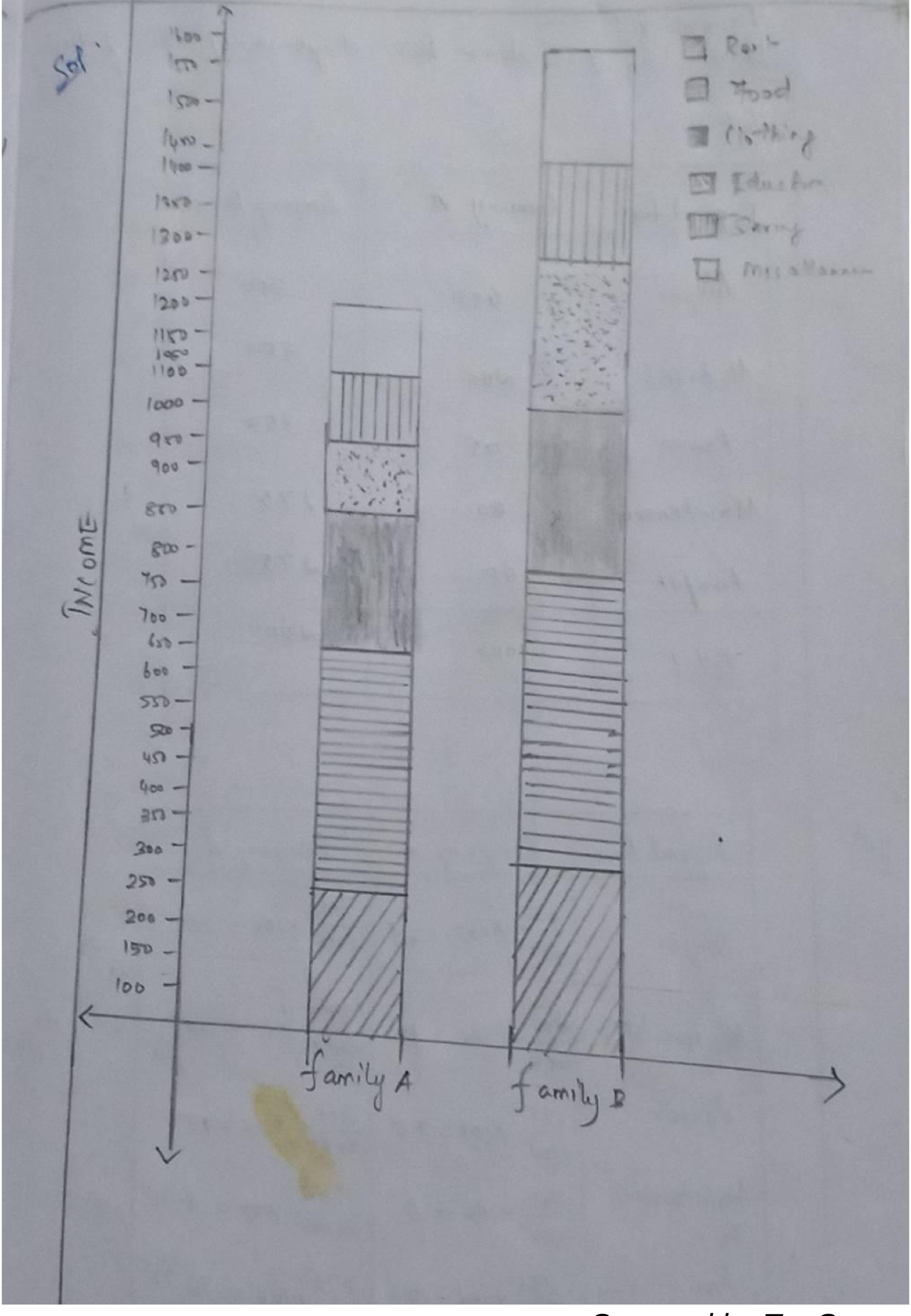


Example 3:-

Represent the following data by a subdivided bar diagram distribution of monthly income of 2 families A and B:-

Income	Family A	Family B
Rent	250	300
Food	400	500
Clothing	200	250
Education	100	250
Saving	150	100
Miscellaneous	100	200

Sol.



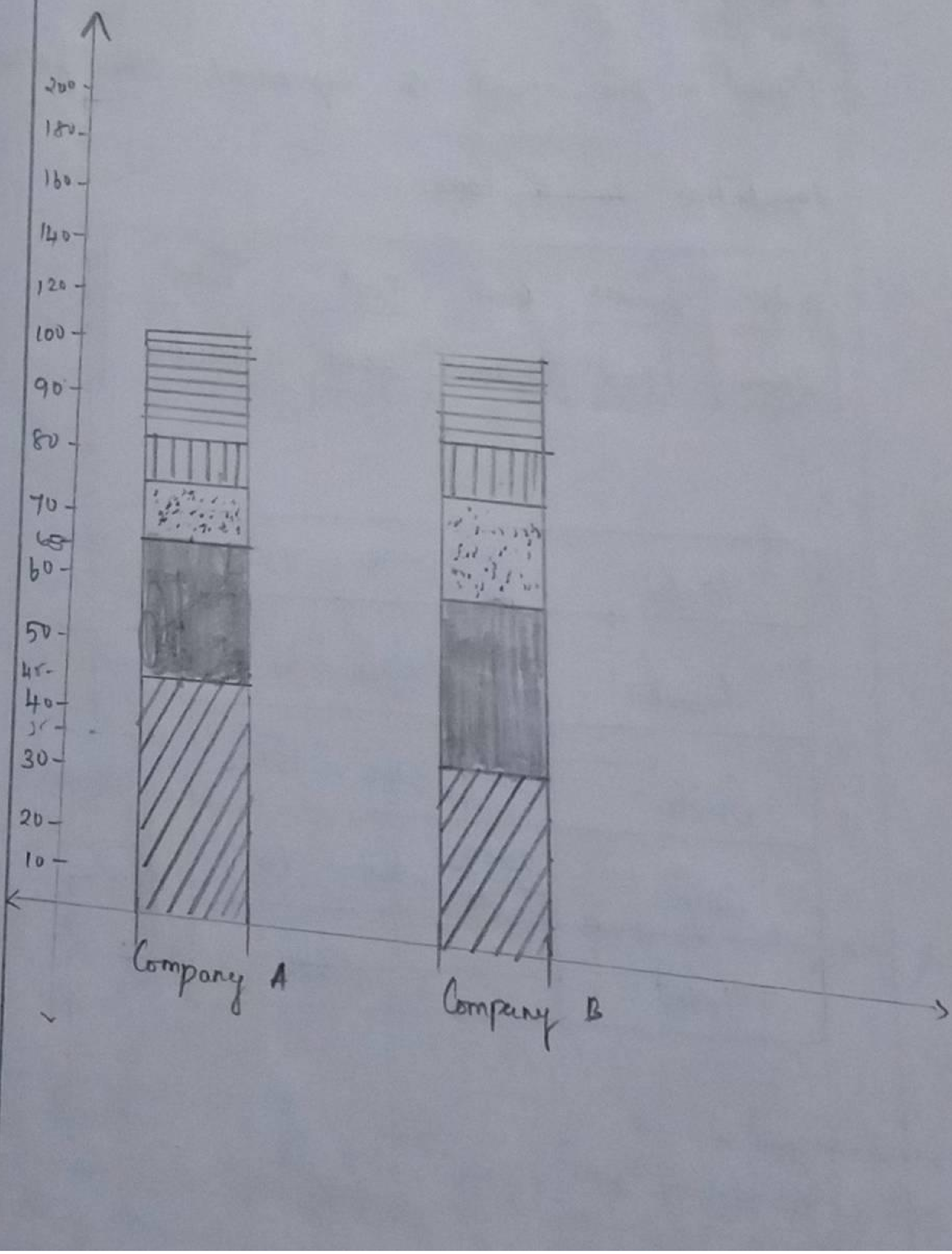
Example 4:
Draw a percentage bar diagram of the following data:

Expenditure	Company A	Company B
Wages	450	700
Material	200	500
Power	75	350
Maintenance	80	175
Profit	195	275
Total	1000	2000

Sol:

Expenditure	Company A	Company B
Wages	$\frac{450}{1000} \times 100 = 45$	$\frac{700}{2000} \times 100 = 35$
Materials	$\frac{200}{1000} \times 100 = 20$	$\frac{500}{2000} \times 100 = 25$
Power	$\frac{75}{1000} \times 100 = 7.5$	$\frac{350}{2000} \times 100 = 17.5$
Maintenance	$\frac{80}{1000} \times 100 = 8$	$\frac{175}{2000} \times 100 = 8.75$
Profit	$\frac{195}{1000} \times 100 = 19.5$	$\frac{275}{2000} \times 100 = 13.75$
	100	100

851



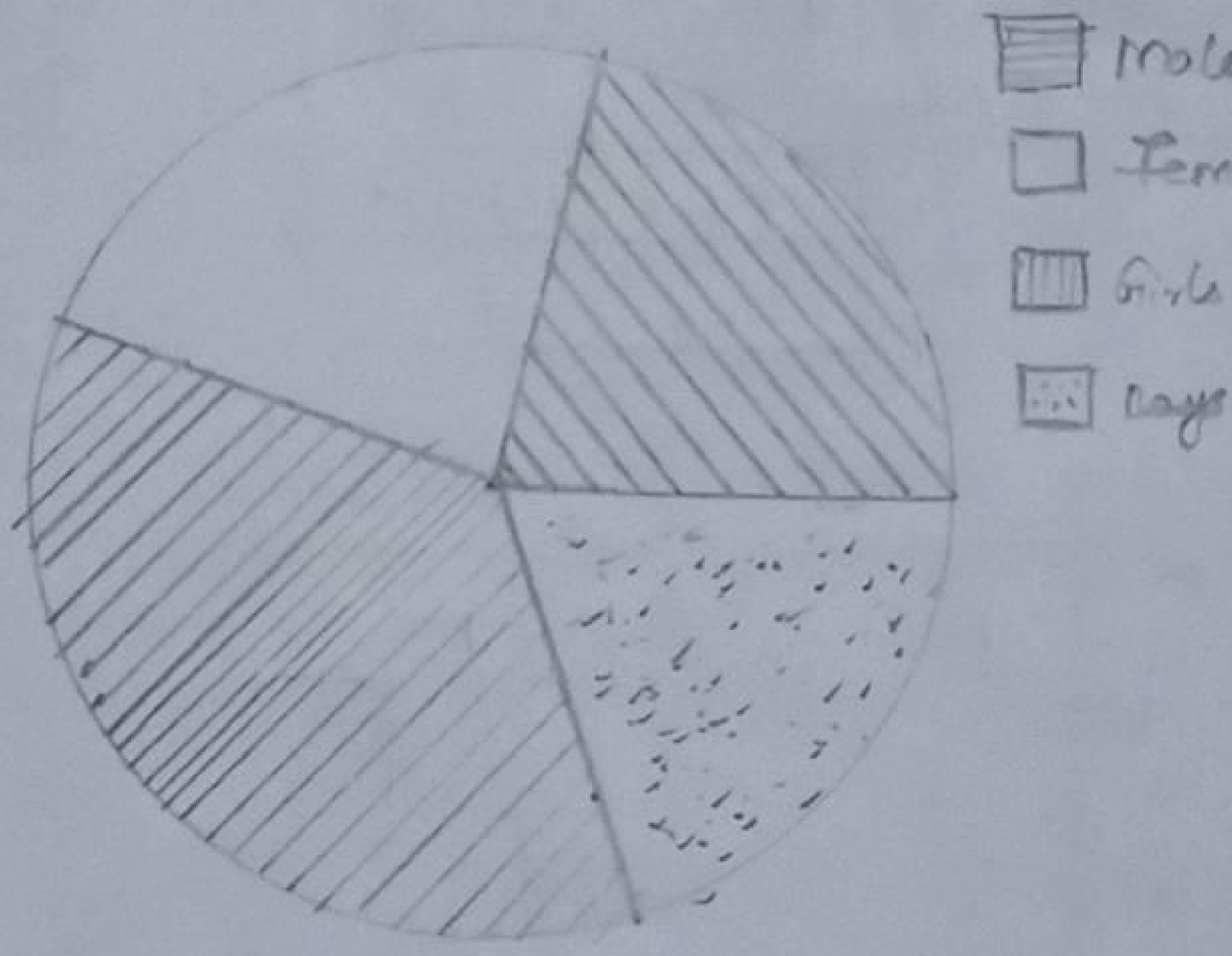
Dat: 14.09.022
Day: Wednesday

Exampl 5: 2- DIMENSIONAL

Draw a pie chart to represent the following population in a town.

Males	Females	Girls	Boys	Total
2000	1800	4200	2000	10000

Males	$\frac{2000}{101000} \times 360 = 72^\circ$
Females	$\frac{1800}{10,000} \times 360 = 64.8$
Girls	$\frac{4200}{10,000} \times 360 = 151.2$
Boys	$\frac{2000}{10,000} \times 360 = 72$
Total	360



GRAPHICAL REPRESENTATION :

Example : 6

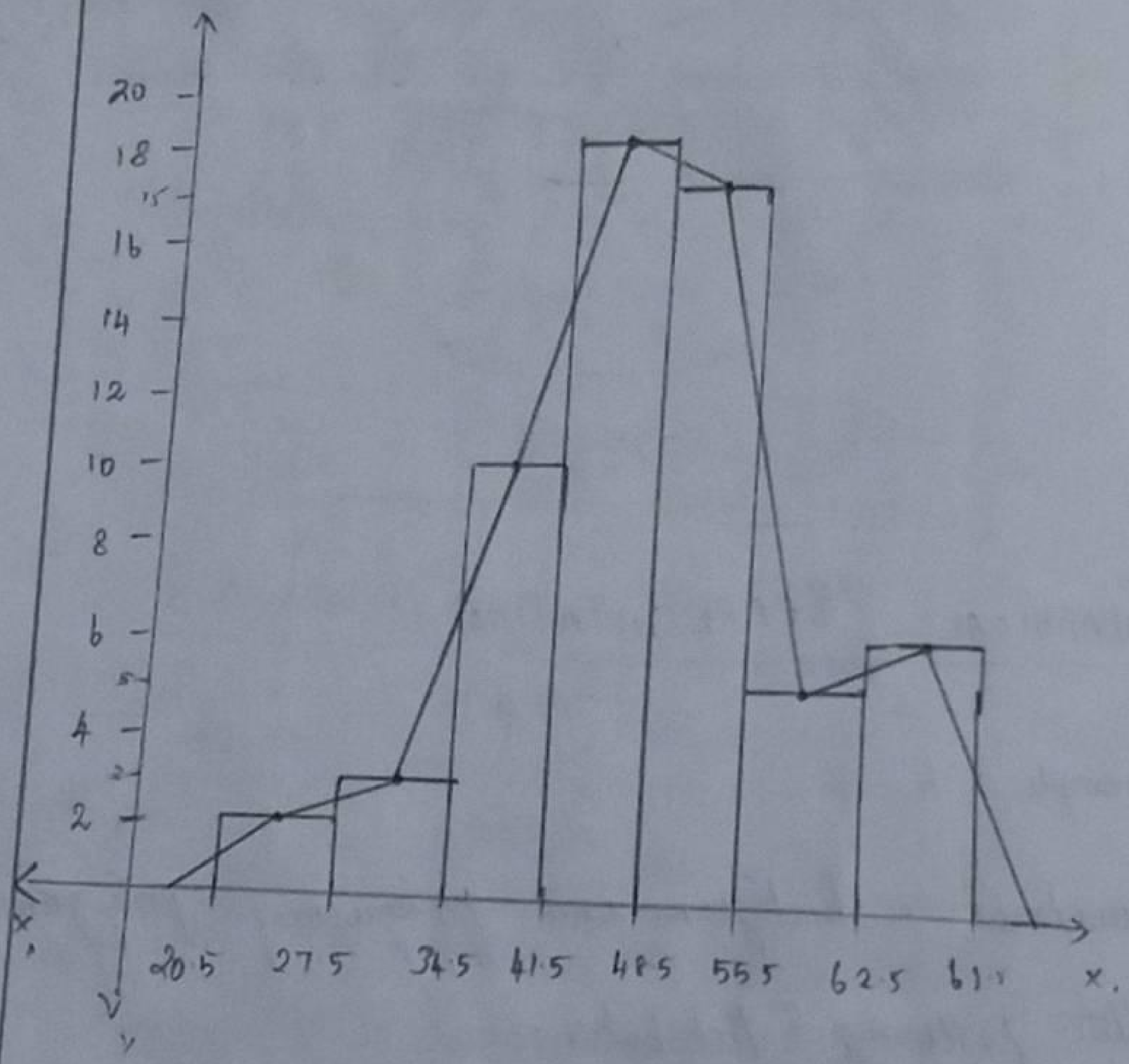
Construct a histogram and frequency polygon for the following distribution :-

Marks	21-27	28-34	35-41	42-48	49-55	56-62	63-69
No of students	2	3	10	18	15	5	6

Sol.

Marks (Class Limits)	20.5-27.5	27.5-34.5	34.5-41.5	41.5-48.5	48.5-55.5
No. of Students	2	3	10	18	15

55.5-62.5	62.5-69.5
5	6



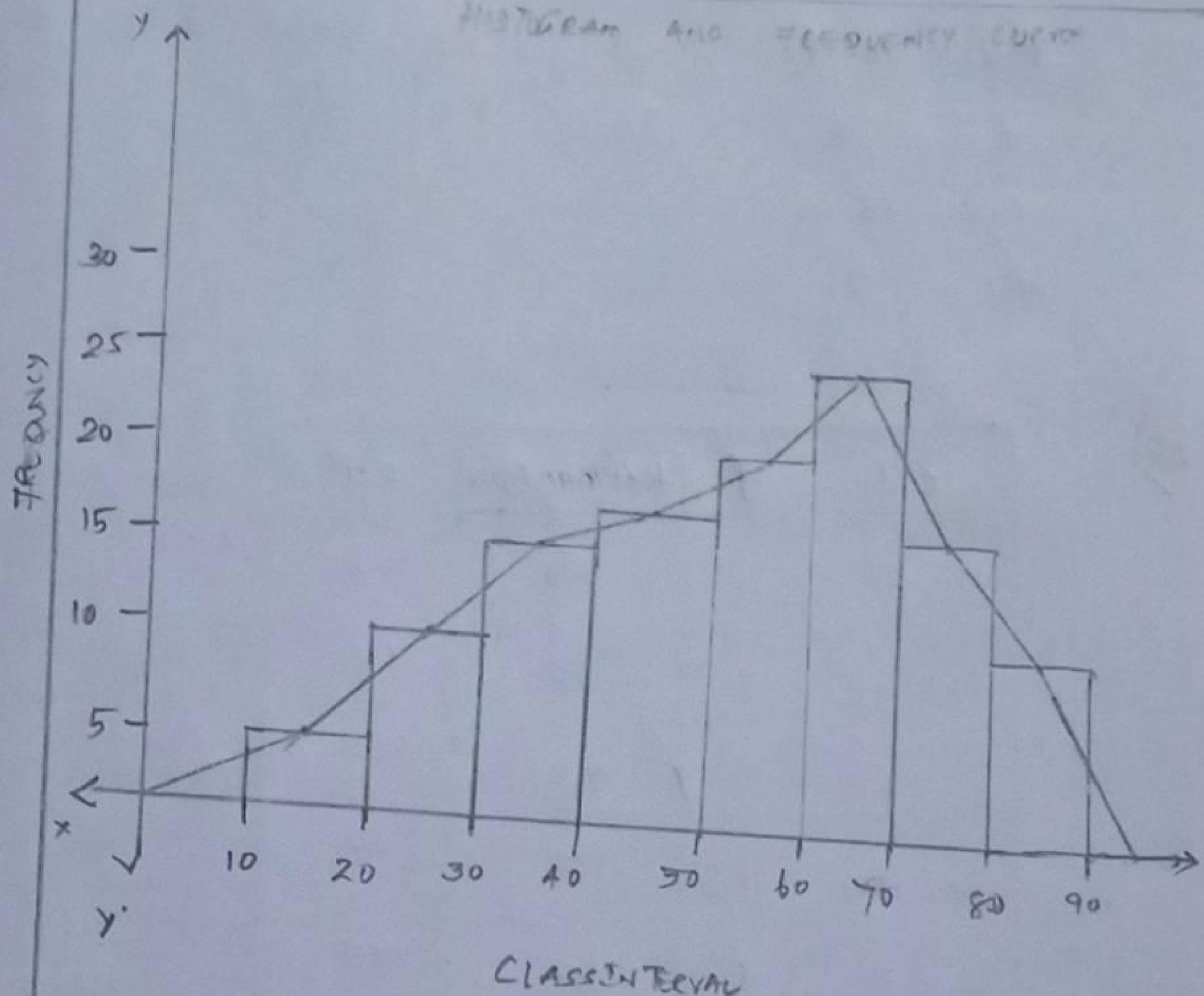
Example 7

For the following table, draw a histogram and frequency curve.

Class Interval	10-20	20-30	30-40	40-50	50-60
Frequency	5	10	15	17	20

60-70	70-80	80-90
24	16	8

HISTOGRAM AND FREQUENCY CURVE



CUMULATIVE FREQUNCY curve or Ogive:-

i) less than Ogive

ii) more than Ogive.

Example 1:

Estimate Q_1 and Q_3 for the following frequency table, using an ogive :-