

Chapter-24
Data Handling-II
(Graphical Representation of Data as histograms)

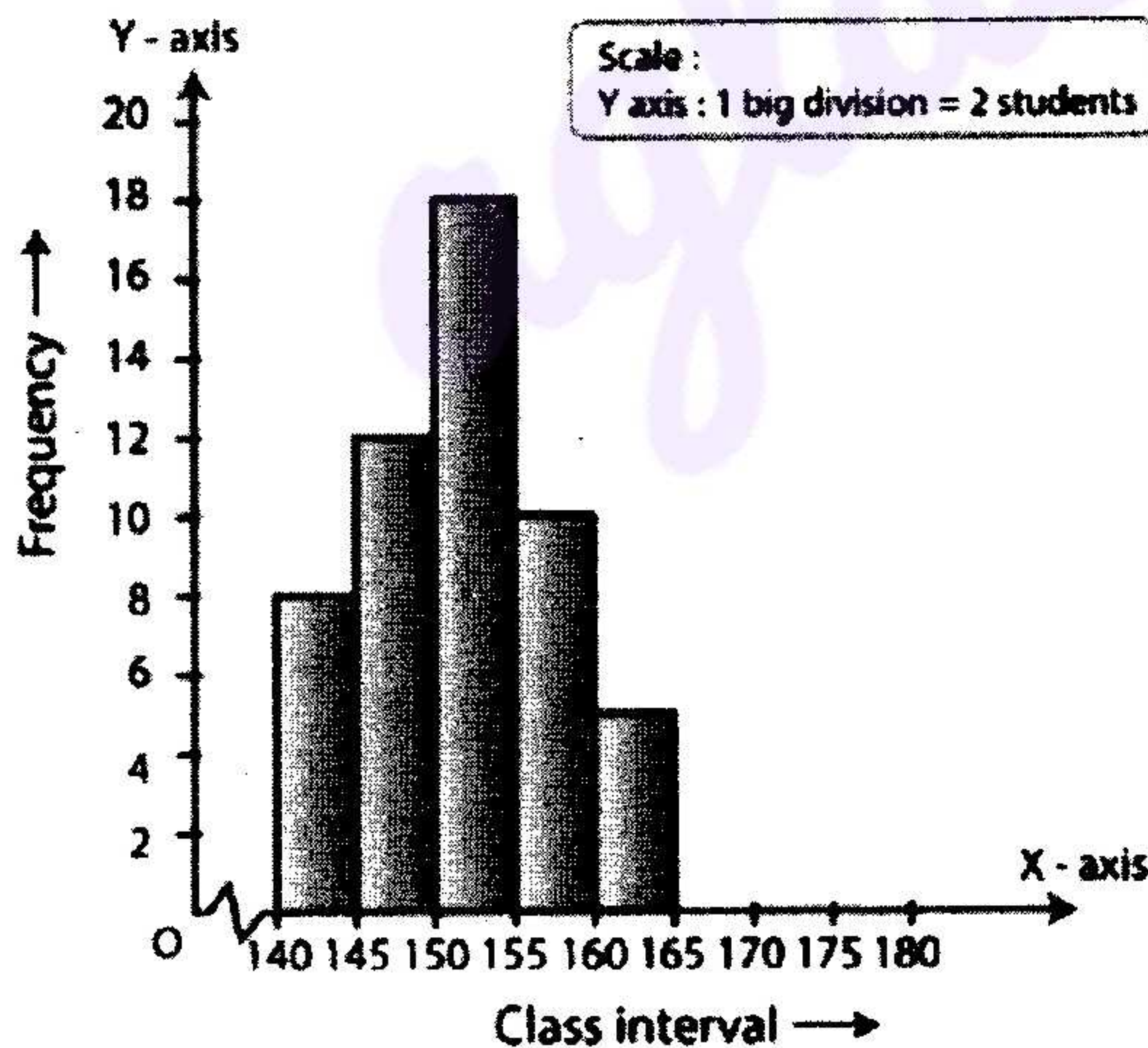
Exercise 24.1

Q.1 Given below is the frequency distribution of the heights of 50 students of a class:

Class-Interval:	140-145	145-150	150-155	155-160	160-165
Frequency:	8	12	18	10	5

Draw a histogram representing the above data.

Sol:

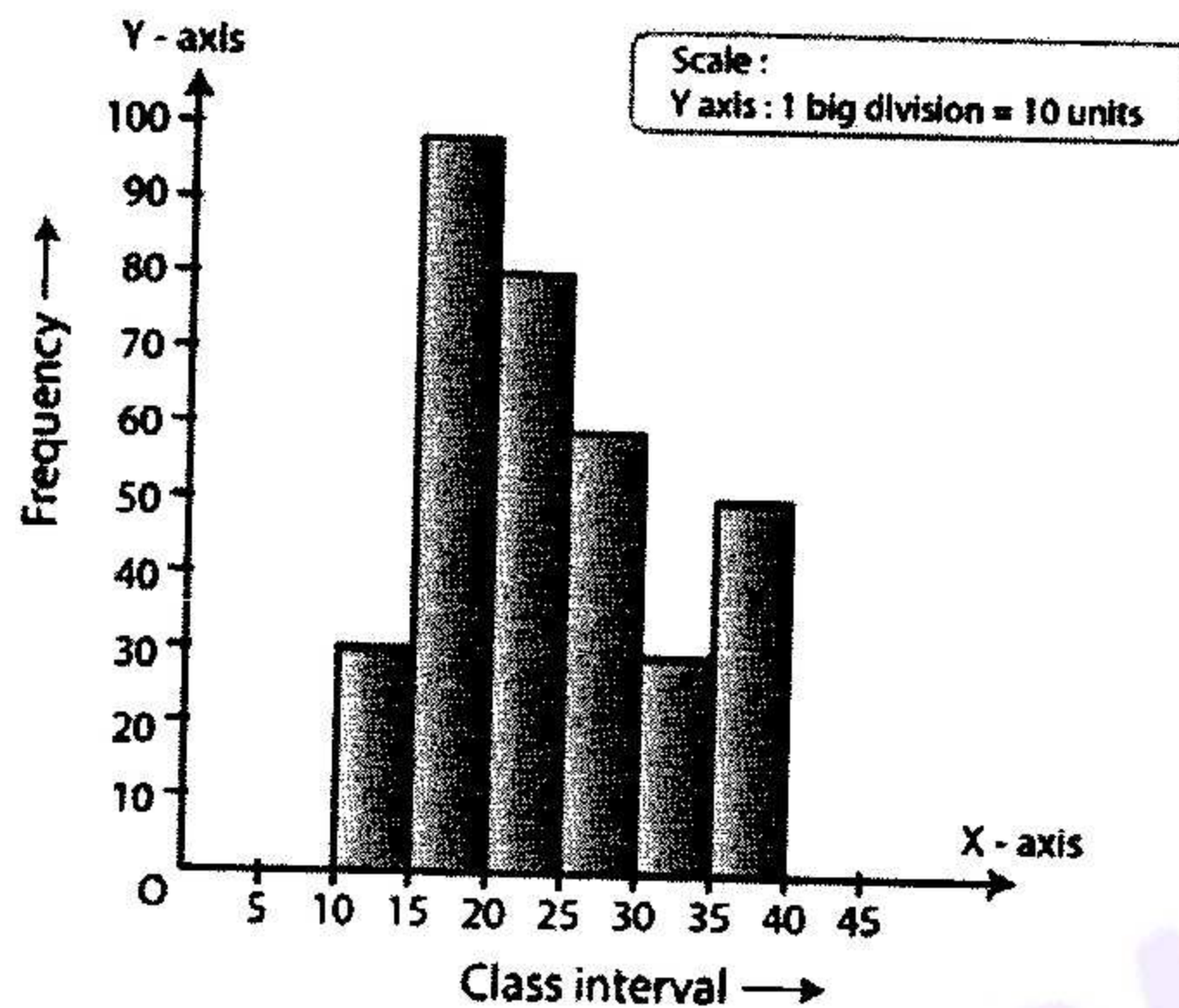


Q.2 Draw a histogram of the following data

Class-Interval: 10-15 15-20 20-25 25-30 30-35 35-40

Frequency: 30 98 80 58 29 50

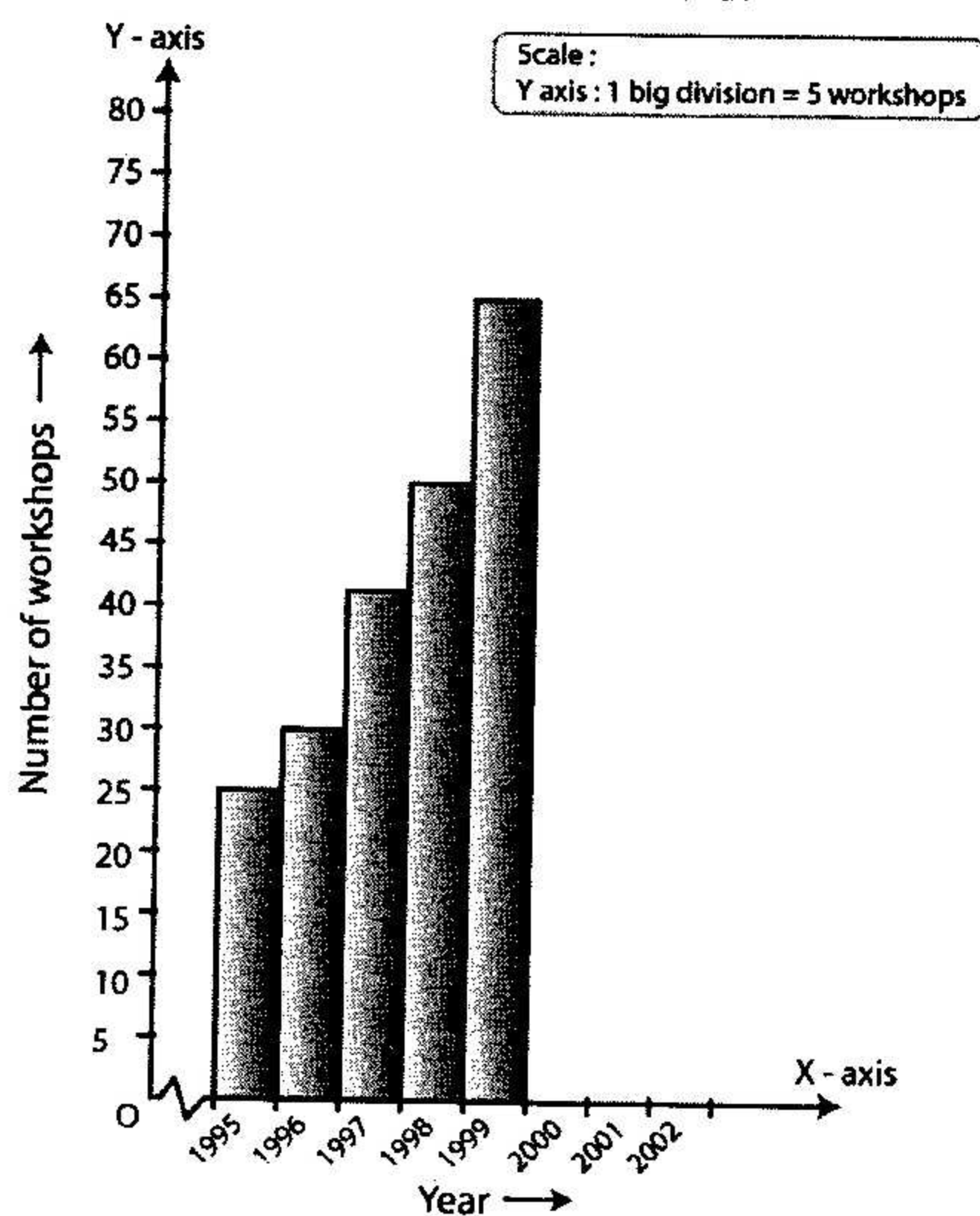
Solution:



Q.3 Number of workshop organized by a school in different areas during the last five years are as follows:

Years	NO. of workshops
1995-1996	25
1996-1997	30
1997-1998	42
1998-1999	50
1999-2000	65

Draw a histogram representing the above data.



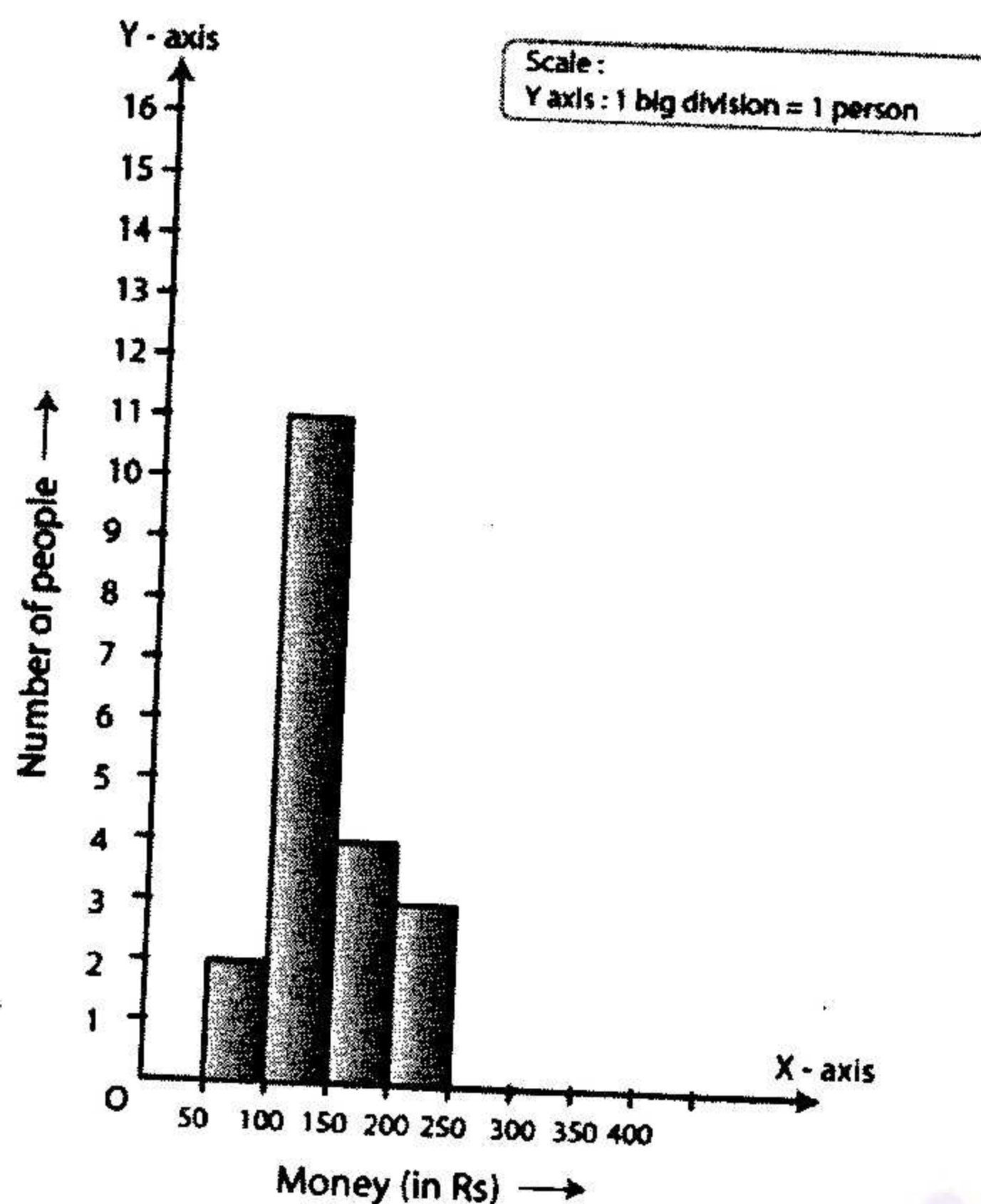
Q.4 In a hypothetical sample of 20 people the amounts of money with them were found to be as follows:

114, 108, 100, 98, 101, 109, 117, 119, 126, 131, 136, 143, 156, 169, 182, 195, 207, 219, 235, 118

Draw the histogram of the frequency distribution (taking one of the class-Interval as 50-100)

Sol: First we prepare the frequency table for class intervals 50-100, 100-150 200-250 as shown -

Class-Interval :	50-100	100-150	150-200	200-250
Frequency :	2	11	4	3

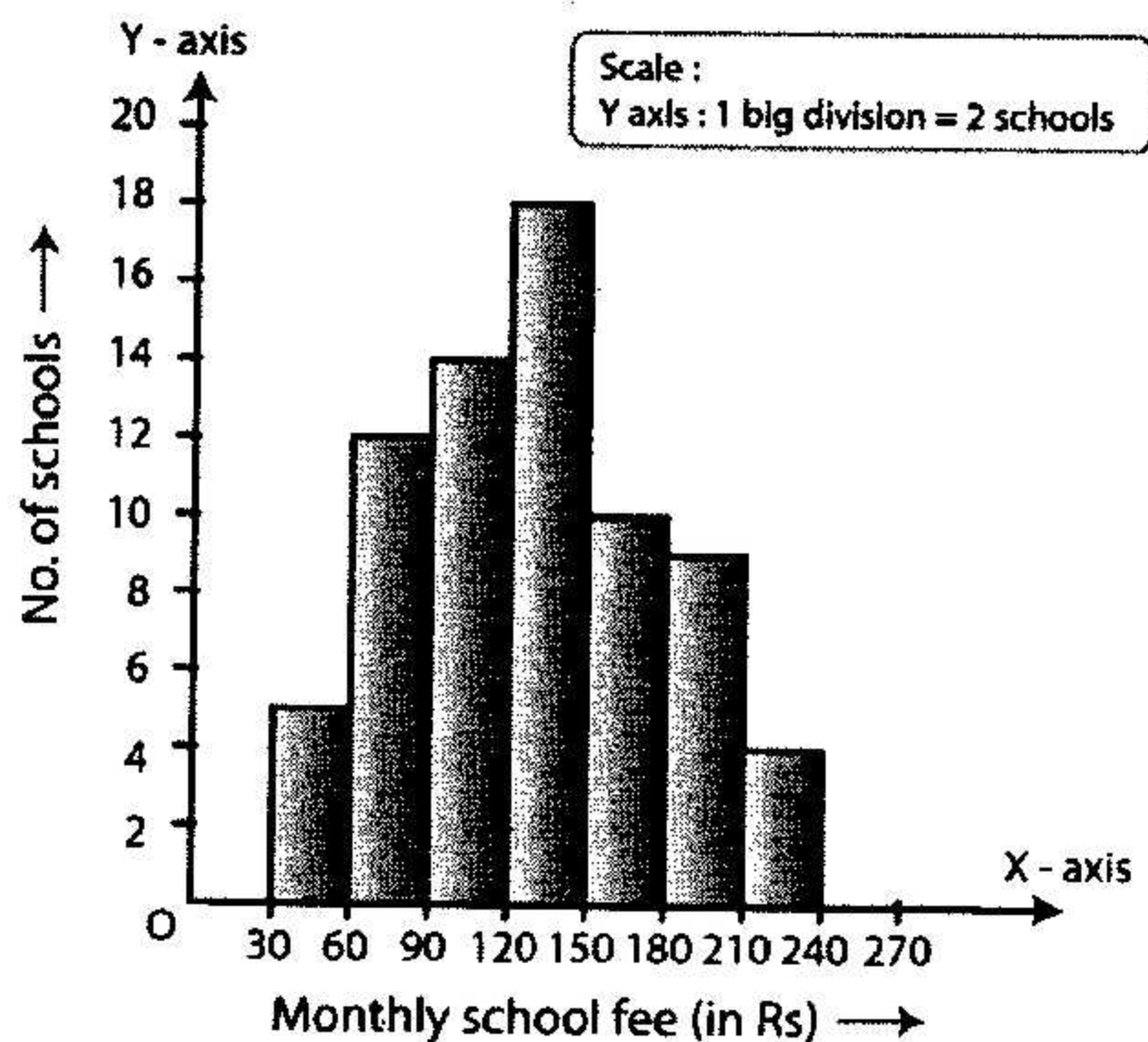


Q.5 Construct a histogram for the following data :

Monthly School Fee (Rs):	30-60	60-90	90-120	120-150	150-180
No. of Schools	5	12	14	18	10

Monthly School fee :	180-240	210-240
No. of Schools	9	4

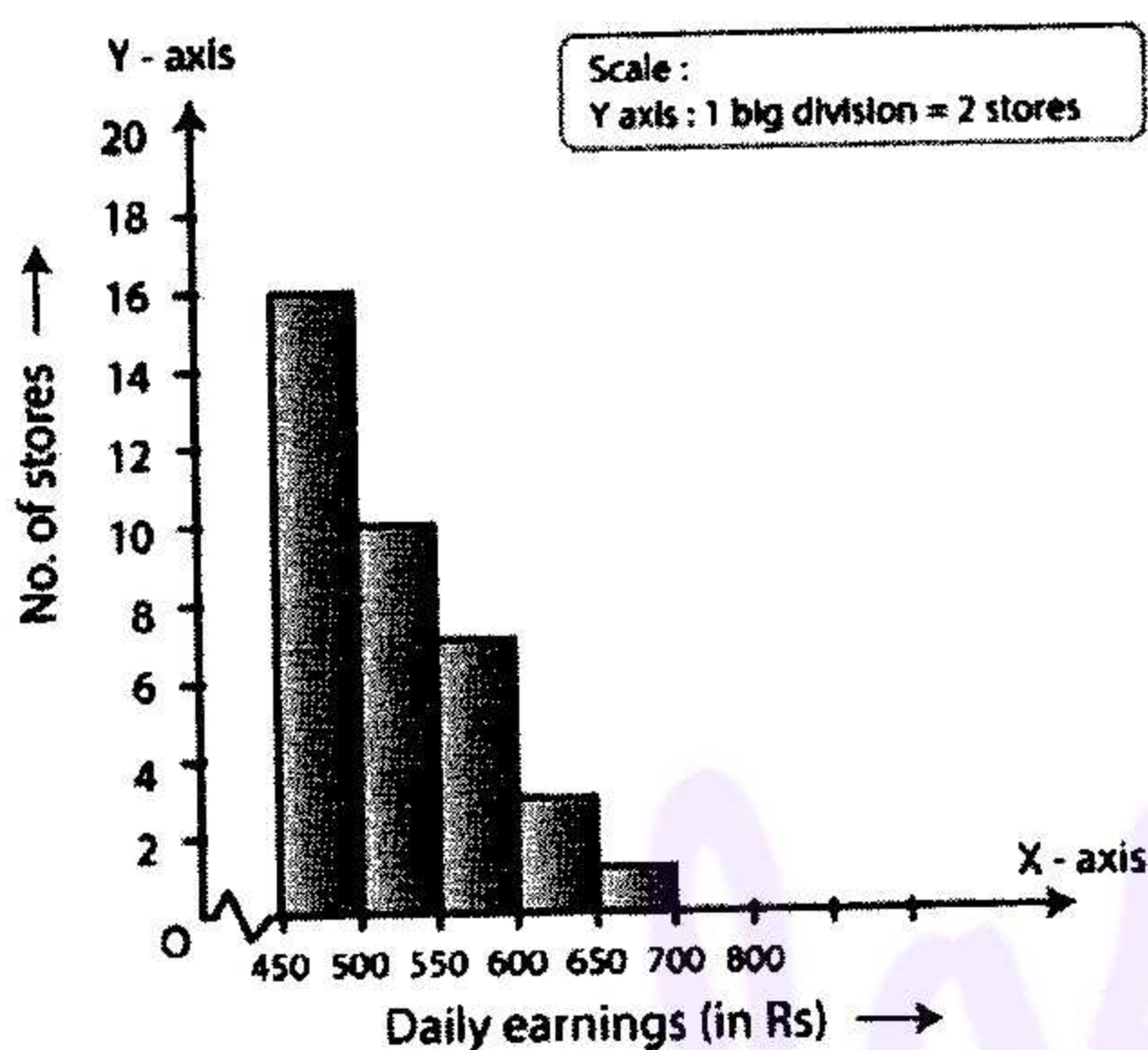
Sol:



Q.6 Draw a histogram for the daily earnings of 30 drug stores in the following table:

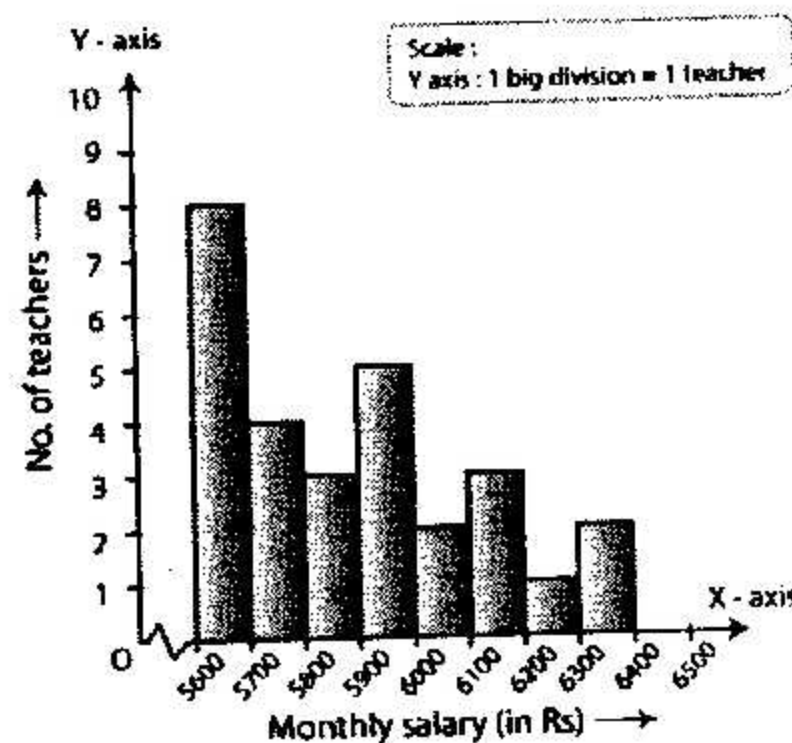
Daily earnings:	450-500	500-550	550-600	600-650	650-700
No. of stores:	16	10	7	3	1

Sol:

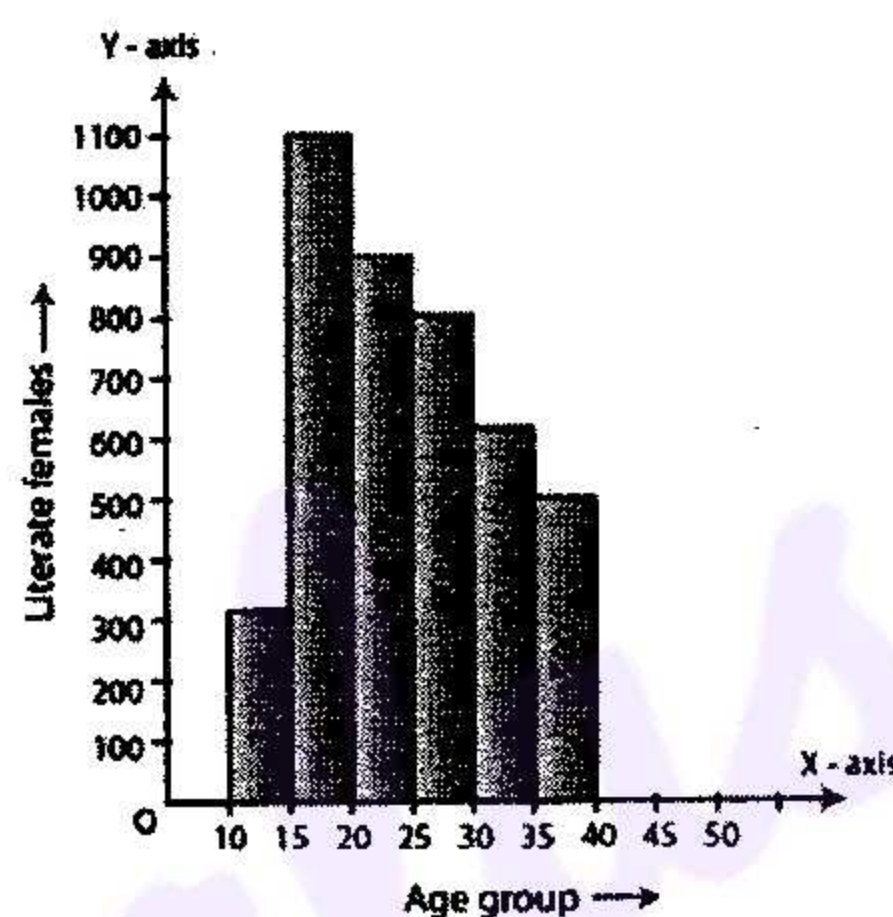


Q.7 Draw a histogram to Represent the following table

Daily earnings Monthly Salary (Rs)	Number of teacher.
5600-5700	8
5700-5800	4
5800-5900	3
5900-6000	5
6000-6100	2
6100-6200	3
6200-6300	1
6300-6400	2



Q.8 The following histogram shows the number of literate females in the age group of 10 to 40 years in a town:



- (i) Write the age group in which the number of literate female is the highest.
- (ii) What is the class width?
- (iii) What is the lowest frequency?
- (iv) What are the class marks of the classes?
- (v) In which age group literate females are the least?

Sol: (i) Age group 15-20

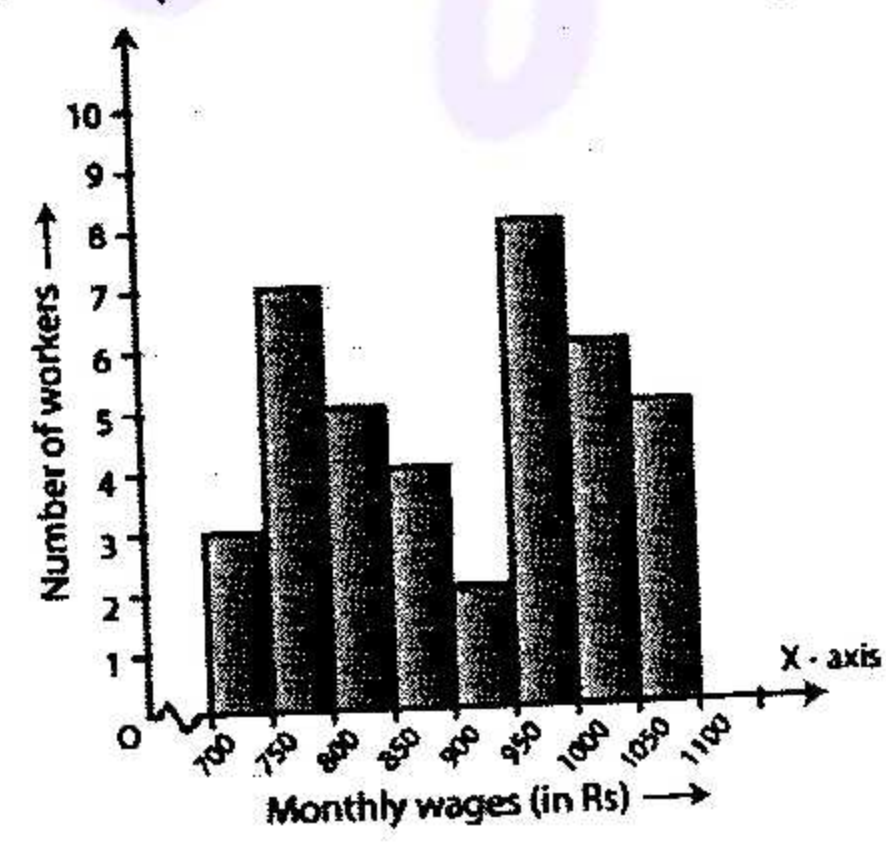
$$\begin{aligned}
 \text{(ii) Class width} &= \text{upper limit} - \text{lower limit} \\
 &= 20 - 15 \\
 &= 5
 \end{aligned}$$

(iii) lowest rectangle corresponds to the lowest frequency, which is 320.

(iv) class mark = $\frac{\text{lower limit} + \text{upper limit}}{2}$

Classes	class mark
10-15	$\frac{10+15}{2} = \frac{25}{2} = 12.5$
15-20	$\frac{15+20}{2} = \frac{35}{2} = 17.5$
20-25	$\frac{20+25}{2} = \frac{45}{2} = 22.5$
25-30	$\frac{25+30}{2} = \frac{55}{2} = 27.5$
30-35	$\frac{30+35}{2} = \frac{65}{2} = 32.5$
35-40	$\frac{35+40}{2} = \frac{75}{2} = 37.5$

Q9 The following histogram shows the monthly wages (in Rs.) of workers in a factory



- In which wage-group the largest numbers of workers are being kept? What is their number?
- What wages are the least number of workers getting? What is the number of such workers?
- What is the total number of workers?
- What is the factory size?

Sol: (i) class-Interval 950 - 1000

(ii) The lowest rectangle corresponds to the least number of workers.

Required Interval = 900 - 950

There are 2 workers in this interval.

(iii) Total workers: $3 + 7 + 5 + 4 + 2 + 8 + 6 + 5 = 40$

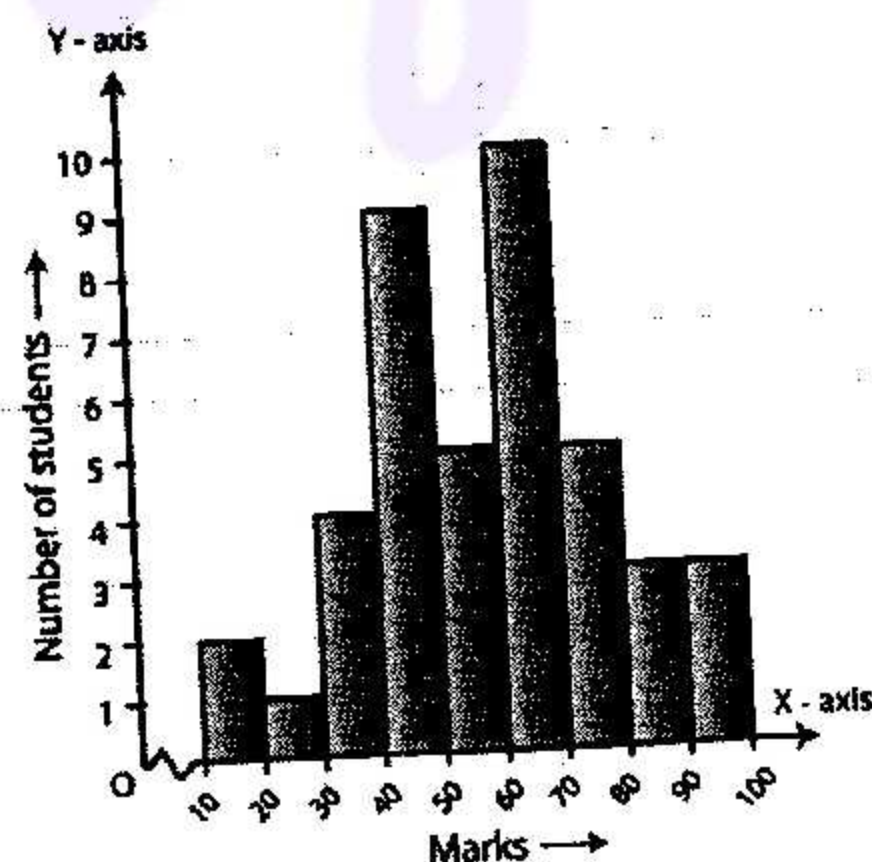
(iv) Factory size is 50

Q.10 Below is the histogram depicting marks obtained by 43 students of a class:

(i) Write the number of students getting the highest marks

(ii) What is the class-size.

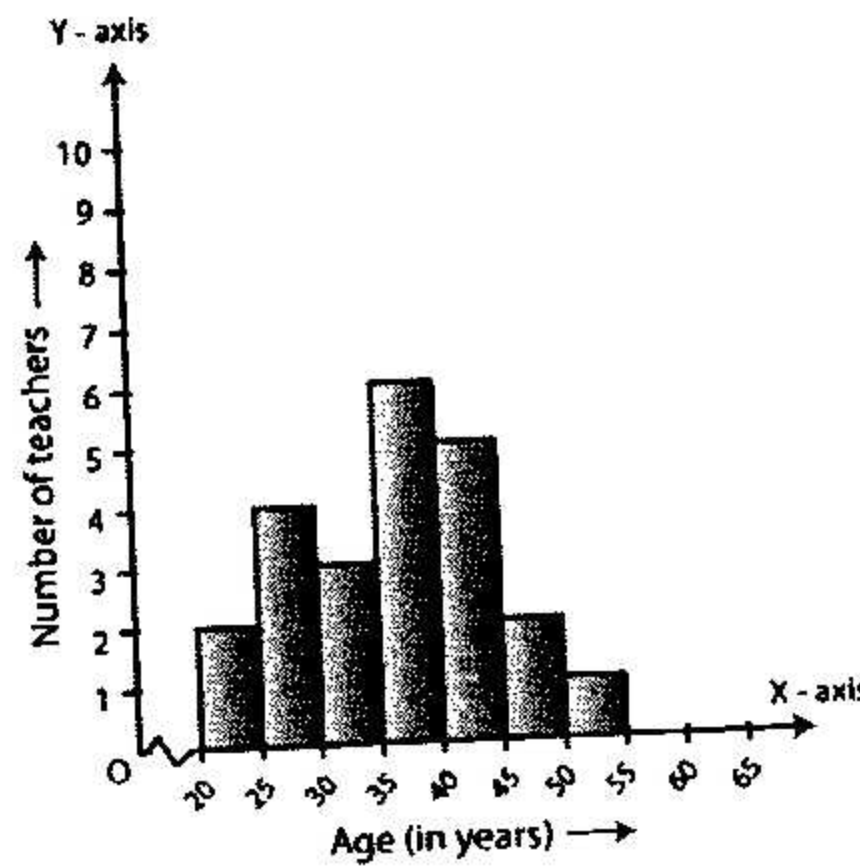
Sol.



Solution: (i) 3 students are getting highest marks in Range of 90-100

(ii) Class-size = $20 - 10 = 10$

Q11 The following histogram shows the frequency distribution of the ages of 22 teachers in a school.



- (i) what is the number of eldest and youngest teachers in the school?
- (ii) which age group teachers are more in the school and which least?
- (iii) what is the class sizes.
- (iv) what are the class marks of classes.

Sol: (i) Eldest Teachers are 1 and 2 youngest teachers.

(ii) Most of teachers are from age group 35-40 years
least teachers are from 50-55 years.

(iii) class-size = $25-20$
 $= 5$

(iv)

$$(iv) \therefore \text{Class mark} = \frac{\text{Upper limit} + \text{Lower limit}}{2}$$

Class - Intervals

Class mark

20-25

$$\frac{20+25}{2} = \frac{45}{2} = 22.5$$

25-30

$$\frac{25+30}{2} = \frac{55}{2} = 27.5$$

30-35

$$\frac{30+35}{2} = \frac{65}{2} = 32.5$$

35-40

$$\frac{35+40}{2} = \frac{75}{2} = 37.5$$

40-45

$$\frac{40+45}{2} = \frac{85}{2} = 42.5$$

45-50

$$\frac{45+50}{2} = \frac{95}{2} = 47.5$$

50-55

$$\frac{50+55}{2} = \frac{105}{2} = 52.5$$

Q.12 The weekly wages (in Rs) of 30 workers in a factory are given:

830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820

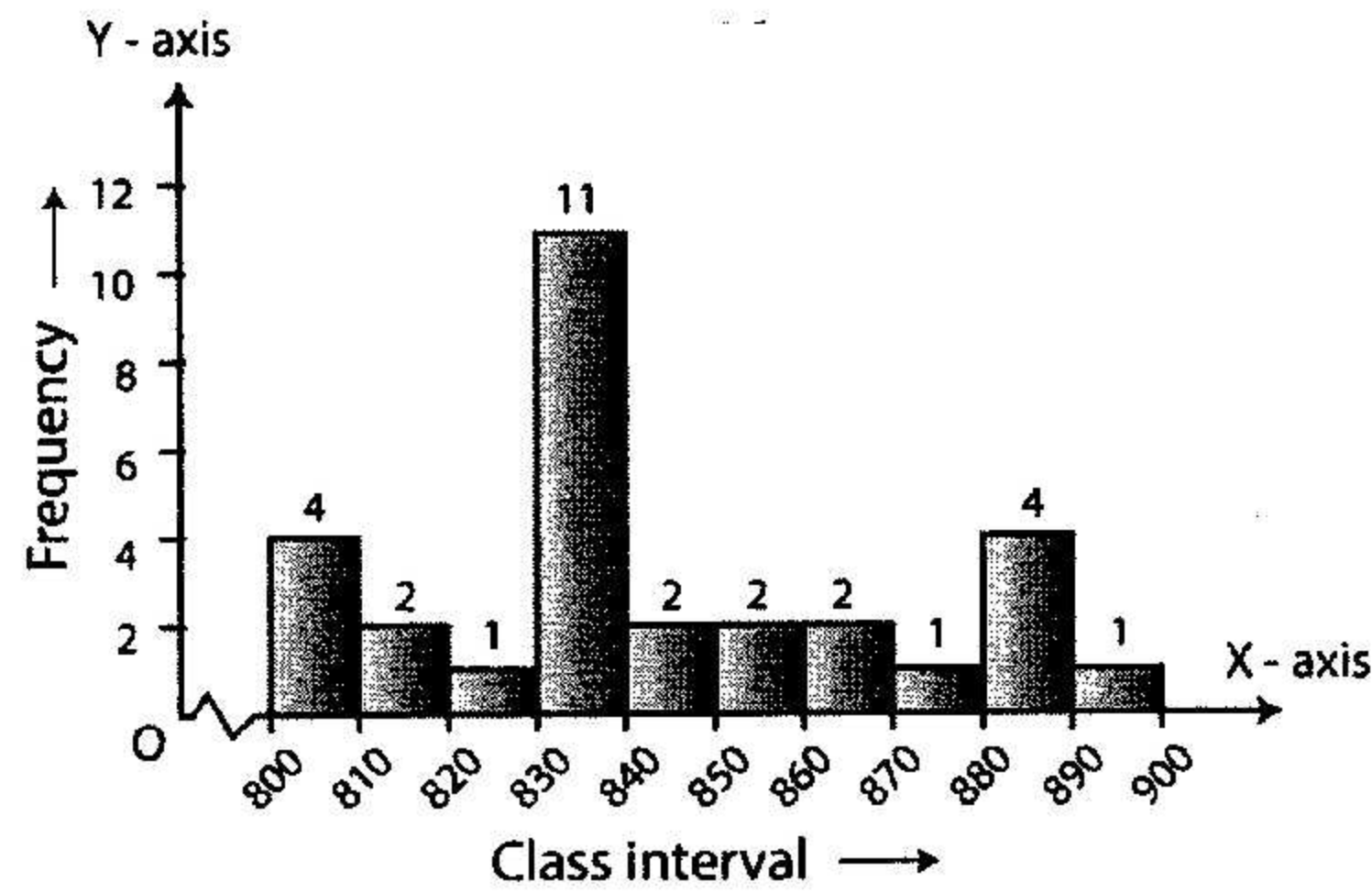
860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835

835, 836, 878, 840, 868, 890, 806, 840.

Make a frequency table with intervals as

800-810, 810-820 ... and so on, using tally marks.

Also, draw a histogram and answer following questions



- (i) which group has the maximum number of workers.
- (ii) How many workers earn Rs. 850 and more?
- (iii) How many workers earn less than Rs 850?

<u>Sol:</u> wages (in Rs) :	800-810	810-820	820-830	830-840	
No. of workers	3	2	1	9	
wages (in Rs)	840-850	850-860	860-870	870-880	880-890
No. of workers.	5	1	3	1	1

(i) group 830-840

(ii) No. of workers earning Rs 850 or more
 $= 1 + 3 + 1 + 1 = 6$ workers

(iii) No. of workers earning less than 850
 $= 3 + 2 + 1 + 9 + 5 = 20$ workers