SATISH SCIENCE ACADEMY

DHANORI PUNE-411015

STATISTICS

Class 09 - Mathematics

Time Allowed: 3 hours **Maximum Marks: 228**

Section A

1. In a histogram the area of each rectangle is proportional to **[1]**

   a) the class size of the corresponding class interval

   b) cumulative frequency of the corresponding class interval

   c) the class mark of the corresponding class interval

   d) frequency of the corresponding class interval

2. In a bar graph if 1 cm represents 30 km, then the length of bar needed to represent 75 km is **[1]**

   a) 3.5 cm

   b) 2.5 cm

   c) 2 cm

   d) 3 cm

3. In a bar graph, 0.25 cm length of a bar represents 100 people. Then, the length of bar which represents 2000 people is **[1]**

   a) 4.5 cm

   b) 4 cm

   c) 5 cm

   d) 3.5 cm

4. A histogram is a pictorial representation of the grouped data in which class intervals and frequency are respectively taken along **[1]**

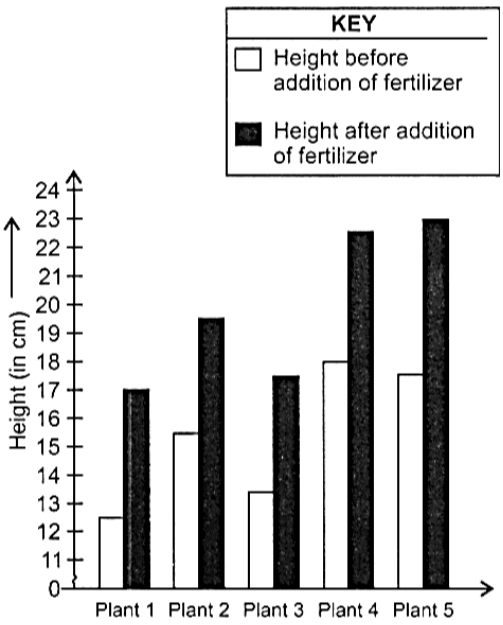
   a) horizontal axis only

   b) horizontal axis and vertical axis

   c) vertical axis and horizontal axis

   d) vertical axis only

5. The owner of a plant nursery wanted to test the effectiveness of a new type of fertilizer. He measured the heights of 5 plants, and then gave each an equal amount of fertilizer. Two weeks later, he measured the heights of the plants again. The graph below shows the height of the plants before and after the addition of fertilizer. **[1]**



What was the mean growth of the plants?

a) 5 cm
b) 6 cm
c) 5.5 cm
d) 4.5 cm

6. In a histogram the class intervals or the groups are taken along **[1]**

a) X-axis
b) Y-axis
c) both of X-axis and Y-axis
d) in between X and Y axis

7. To draw a histogram to represent the following frequency distribution : **[1]**

Class interval	5-10	10-15	15-25	25-45	45-75
Frequency	6	12	10	8	15

The adjusted frequency for the class 25-45 is

a) 6
b) 5
c) 2
d) 3

8. In a histogram, which of the following is proportional to the frequency of the corresponding class? **[1]**

a) Width of the rectangle
b) Area of the rectangle
c) Perimeter of the rectangle
d) Length of the rectangle

9. The expenditure of a family on different heads in a month is given below: **[1]**

Head	food	Education	clothing	House	Others	Savings
Expenditure	4000	2500	1000	3500	2500	1500

Draw a bar graph to represent the data above.

10. Following table shows a frequency distribution for the speed of cars passing through at a particular spot on a high way : **[1]**

Class interval km/h	Frequency
30-40	3
40-50	6

50-60	25
60-70	6
50-60	25
60-70	65
70-0	14

Draw the frequency polygon representing the above data without drawing the histogram.

11. Explain the reading and interpretation of bar graphs. **[1]**

Section B

12. A random survey of the number of children of various age group playing in the park was found: **[2]**

Age [in years]	1 - 2	2 - 3	3 - 5	5 - 7	7 - 10
No. of children	3	5	7	10	13

Draw a histogram to represent the data above?

13. The following table shows the number of Maruti cars sold by five dealers in a particular month: **[2]**

Dealer:	Saya	Bagga Links	D.D. Motors	Bhasin Motors	Competent
Cars sold:	60	40	20	15	10

Represent the above information by a pictograph.

14. The distribution of weights (in kg) of 100 people is given below: **[2]**

Weight (in kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75	Total
Frequency	13	25	28	15	12	5	2	100

Construct a histogram and frequency polygon for the above data.

15. The following table shows the life expectancy (average age to which people live) in various countries in a particular year. Represent the data by a bar graph. **[2]**

Country	Japan	India	Britain	Ethiopia	Cambodia	UK
Life expectancy (in years)	84	68	80	64	62	73

16. The following is the distribution of weight (in kg) of 50 persons : **[2]**

Weight (in kg)	**Number of persons**
50-55	12
55-60	8
60-65	5
65-70	4
70-75	5
75-80	7
80-85	6
85-90	3

Total	50

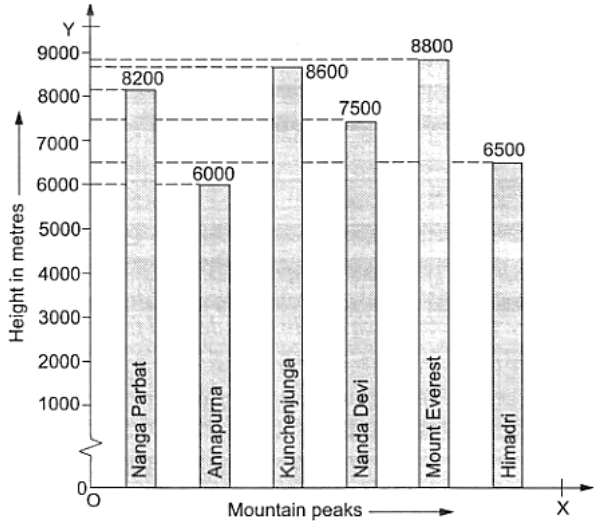
Draw a histogram for the above data.

17. The following table gives the distribution of IQ's (intelligence quotients) of 60 pupils of class V in a school: **[2]**

IQ's:	125.5 to 132.5	118.5 to 125.5	111.5 to 118.5	104.5 to 111.5	97.5 to 104.5	90.5 to 97.5	83.5 to 90.5	76.5 to 83.5	69.5 to 76.5	62.5 to 69.5
No. of pupils:	1	3	4	6	10	12	15	5	3	1

Draw a frequency polygon for the above data.

18. Given below is a bar graph showing the heights of six mountain peaks. **[2]**



Read the above diagram and answer the following questions:

i. Which is the highest peak and what is its height?

ii. Write down the ratio of the heights of the highest peak and the lowest peak.

iii. Write the heights of the given peaks in ascending order.

iv. Which peak is the second highest and what is its height?

19. The following table gives the distribution of IQ (intelligence quotient) of 60 pupils of Class VIII in a School : **[2]**

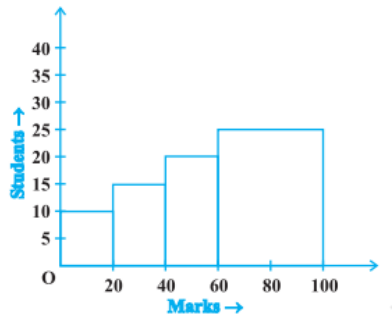
IQ	60-70	70-80	80-90	90-100	100-110	110-120	120-130	Total
Number of pupils	2	3	5	16	14	13	7	60

Draw a frequency polygon for the above data.

20. The frequency distribution **[2]**

Marks	0-20	20-40	40-60	60-100
Number of students	10	15	20	25

has been represented graphically as follows :



Do you think this representation is correct? Why?

21. Look at the bar graph given below. **[2]**

Read it carefully and answer the following questions.

i. What information does the bar graph give?

ii. In which subject does the student very good?

iii. In which subject is he poor?

iv. What is the average of the marks?

22. Following is the distribution of total household expenditure (in rupees) of manual workers in a city : **[2]**

Class intervals (in ₹)	**Frequencies**
100-150	25
150-200	40
200-250	33
250-300	28
300-350	30
350-400	22
400-450	16
450-500	8
Total	202

Draw a histogram and a frequency polygon representing the above data.

23. The approximate velocities of some vehicles are given below: **[2]**

Name of vehicle	Bicycle	Scooter	Car	Bus	Train
Velocity (in km/hr)	27	45	90	72	63

Draw a bar graph to represent the above data.

24. The distribution of heights (in cm) of 96 children is given below. Construct a histogram on the same axes. **[2]**

Height (in cm):	124 to 128	128 to 132	132 to 136	136 to 140	140 to 144	144 to 148	148 to 152	152 to 156	156 to 160	160 to 164
No. of	5	8	17	24	16	12	6	4	3	1

Children:										

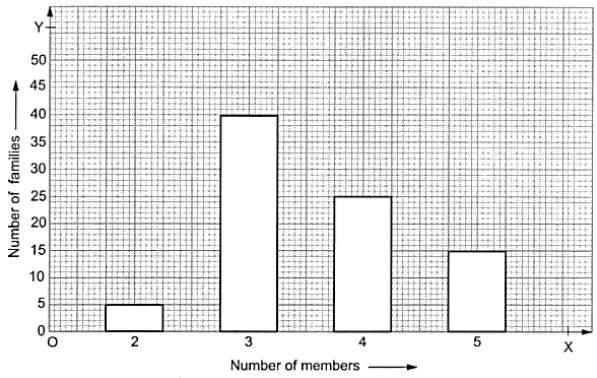
25. The value of π upto 50 decimal places is given below : **[2]**

3.14159265358979323846264338327950288419716939937510

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 occuring digits?

26. In a survey of 85 families of a colony, the number of members in each family was recorded and the data has been represented by the following bar graph: **[2]**



Read the bar graph carefully and answer the following questions:

i. What information does the bar graph give?

ii. How many families have 3 members?

iii. How many people live alone?

iv. Which type of family is the most common? How many members are there in each family of this kind?

27. For the following data, draw a histogram and a frequency polygon: **[2]**

Mark	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No. of student	5	10	4	6	7

28. The following data gives the value (in crores of rupees) of the Indian export of cotton textiles for different years: **[2]**

Years	1982	1983-84	1984-85	1985-86	1986-87
Value of Exports of Cotton Textiles (in crores of rupees)	300	325	475	450	550

Represent the above data with the help of a bar graph. Indicate with the help of a bar graph the year in which the rate of increase in exports is maximum over the preceding year.

29. The following distribution gives the time taken by 25 students to solve a problem : **[2]**

Time (in seconds)	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Number of students	2	3	7	6	4	2	1	25

Draw a histogram to represent the above data.

30. Construct a histogram from the following distribution of total marks obtained by 65 students of IX class in the final examination. **[2]**

Marks (mid-points):	150	160	170	180	190	200

No. of students:	8	10	25	12	7	3

31. The following data gives the number (in thousands) of applicants registered with an Employment Exchange during, 1995-2000: **[2]**

Year	1995	1996	1997	1998	1999	2000
Number of applicants registered (in thousands)	18	20	24	28	30	34

Construct a bar graph to represent the above data.

Section C

32. Below are the scores of two groups of Class IV students on a test of reading ability : **[3]**

Class interval	Group A	Group B
50-52	4	2
47-49	10	3
44-46	15	4
41-43	18	8
38-40	20	12
35-37	12	17
32-34	13	22
Total	92	68

Construct a frequency polygon for each of these groups on the same axes.

33. The following data on the number of girls (to the nearest ten) per thousand boys in different sections of Indian society is given below. **[3]**

Section	Number of girls per thousand boys
Scheduled Caste (SC)	940
Scheduled Tribe (ST)	970
Non SC/ST	920
Backward districts	950
Non-backward districts	920
Rural	930
Urban	910

i. Represent the information above by a bar graph.

ii. In the classroom discuss what conclusion can be arrived at from the graph.

34. 100 surnames were randomly picked up from a local telephone directory and a frequency distribution of the number of letters in the English alphabets in the surnames was found as follows : **[3]**

Number of letters	Number of surnames
1-4	6
4-6	30
6-8	44
8-12	16
12-20	4

i. Draw a histogram to depict the given information.

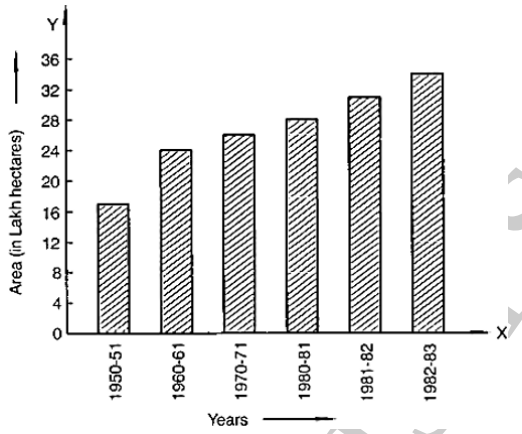
ii. Write the class interval in which the maximum number of surnames lie.

35. The marks obtained (out of 100) by a class of 80 students are given below: **[3]**

Marks	10-20	20-30	30-50	50-70	70-100
Number of students	6	17	15	16	26

Construct a histogram to represent the data above.

36. Read the bar graph given in Figure and answer the following questions: **[3]**



i. What information is given by the bar graph?

ii. In which years the areas under the sugarcane crop were the maximum and the minimum?

iii. State whether true or false:

The area under the sugarcane crop in the year 1982-83 is three times that of the year 1950-51.

37. The following table gives the life times of 400 neon lamps : **[3]**

Life time(in hours)	Number of lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

i. Represent the given information with the help of a histogram.

ii. How many lamps have a life time of more than 700 hours?

38. Draw a histogram of the following distribution: **[3]**

Height (in cm)	Number of students
150 - 153	7
153 - 156	8
156 - 159	14
159 - 162	10
162 - 165	6
165 - 168	5

39. The expenditure (in 10 crores of rupees) on health by the Government of India during the various five year plans is shown below : **[3]**

Plans:	i	ii	III	IV	V	VI
Expenditure on health (in 10 crores of rupees)	7	14	23	34	76	182

Construct a bar graph to represent the above data.

40. Following table shows a frequency distribution for the speed of cars passing through at a particular spot on a high way: **[3]**

Class interval (km/h)	Frequency
30 - 40	3
40 - 50	6
50 - 60	25
60 - 70	65
70 - 80	50
80 - 90	28
90 - 100	14

Draw histogram and frequency polygon representing the data above.

41. Various modes of transport used by 1850 students of a school are given below: **[3]**

School bus	Private bus	Bicycle	Rickshaw	By foot
640	360	490	210	150

Draw a bar graph to represent the above data.

42. The income and expenditure for 5 years of a family is given in the following data: **[3]**

Years	1995-96	1996-97	1997-98	1998-99	1999-2000
Income (₹ in thousands)	100	140	150	170	210

Expenditure (₹ in thousands)	80	130	145	160	190

Represent the above data by a bar graph.

43. The production of saleable steel in some of the steel plants of our country during 1999 is given below: **[3]**

Plant	Bhilai	Durgapur	Rourkela	Bokaro
Production (In thousand tonnes)	160	80	200	150

Construct a bar graph to represent the above data on a graph paper by using the scale 1 big divisions = 20 thousand tonnes.

44. The investment (in ten crores of rupees) of Life Insurance Corporation of India in different sectors are given below: **[3]**

Sectors	Investment (in ten crores of rupees)
Central Government Securities	45
State Government Securities	11
Securities guaranteed by the Government	23
Private Sectors	18
Socially oriented sectors (Plan)	46
Socially oriented sectors (Non-Plan)	11

Represent the above data with the help of a bar graph.

45. The following is the monthly expenditure (Rs.) of ten families of the particular area: 145, 115, 129, 135, 139, 158, 170, 175, 188, 163 **[3]**

i. Make a frequency distribution table by using the following class interval: 100 - 120, 120 - 140, 140 - 160, 160 - 180, 180 - 200.

ii. Construct a frequency polygon for the above frequency distribution.

46. The population of Delhi State in different census years is as given below: **[3]**

Census year	1961	1971	1981	1991	2001
Population in Lakhs	30	55	70	110	150

Represent the above information with the help of a bar graph.

47. The following data shows the interest paid by a company (in lakhs): **[3]**

Year	1995-96	1996-97	1997-98	1998-99	1999-2000
Interest (in lakhs of rupees)	20	25	15	18	30

Represent the above information by a bar graph.

48. The production of oil (in lakh tonnes) in some of the refineries in India during 1982 was given below: **[3]**

Refinery:	Barauni	Koyali	Mathura	Mumbai	Florida

Production of oil (in lakh tonnes)	30	70	40	45	25

Construct a bar graph to represent the above data so that the bars are drawn horizontally.

49. The time taken, in seconds, to solve a problem by each of 25 pupils is as follows: **[3]**

16, 20, 26, 27, 28, 30, 33, 37, 38, 40, 42, 43, 46, 46, 46, 48, 49, 50, 53, 58, 59, 60, 64, 52, 20

i. Construct a frequency distribution for these data, using a class interval of 10 seconds.

ii. Draw a histogram to represent the frequency distribution.

50. A survey conducted by an organisation for the cause of illness and death among the women between the ages 15 - 44 (in years) worldwide, found the following figures (in %): **[3]**

S.No.	Causes	Female fatality rate (%)
1	Reproductive health conditions	31.8
2	Neuropsychiatric conditions	25.4
3	Injuries	12.4
4	Cardiovascular conditions	4.3
5	Respiratory conditions	4.1
6	Other causes	22.0

i. Represent the information given above graphically.

ii. Which condition is the major cause of women's ill health and death worldwide?

iii. Try to find out, with the help of your teacher, any two factors which play a major role in the cause in (ii) above being the major cause.

51. The following data shows the average age of men in various countries in a certain year: **[3]**

Country	India	Nepal	China	Pakistan	U.K.	U.S.A.
Average age (in years)	55	52	60	50	70	75

Represent the above information by a bar graph.

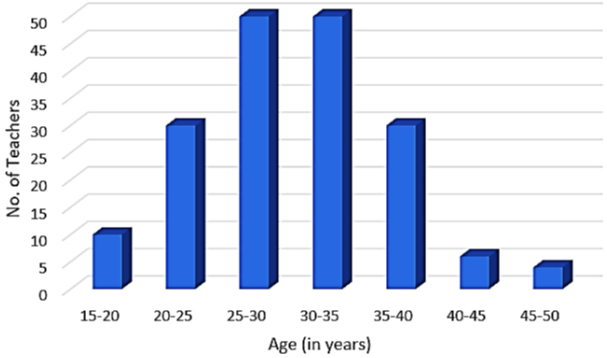
Section D

52. **Read the following text carefully and answer the questions that follow:** **[4]**

A teacher is a person whose professional activity involves planning, organizing, and conducting group activities to develop student's knowledge, skills, and attitudes as stipulated by educational programs. Teachers may work with students as a whole class, in small groups or one-to-one, inside or outside regular classrooms. In this indicator, teachers are compared by their average age and work experience measured in years.

For the same in 2015, the following distribution of ages (in years) of primary school teachers in a district was

collected to evaluate the teacher on the above-mentioned criterion.



i. What is the total no of teachers? (1)

ii. Find the class mark of class 15 - 20, 25 - 30 and 45 - 50? (1)

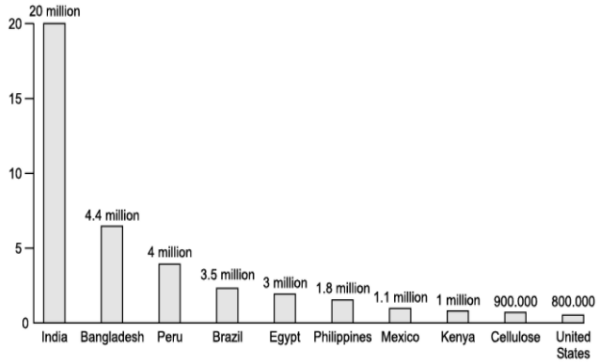
iii. What is the no of teachers of age range 25 - 40 years? (2)

OR

Which classes are having same no. of teachers? (2)

53. **Read the following text carefully and answer the questions that follow:** **[4]**

Child labour refers to any work or activity that deprives children of their childhood. It is a violation of children's rights. This can them mentally or physically. It also exposes them to hazardous situations or stops them from going to school. Naman got data on the number of child labors (in million) in different country that is given below.



i. What is the difference between highest no child labor and the minimum no of child labor? (1)

ii. What is the percentage of no. of child labor in Peru over the no. of child labor in India? (1)

iii. What is the total no. of child labor in the countries having child labor more than 2 million? (2)

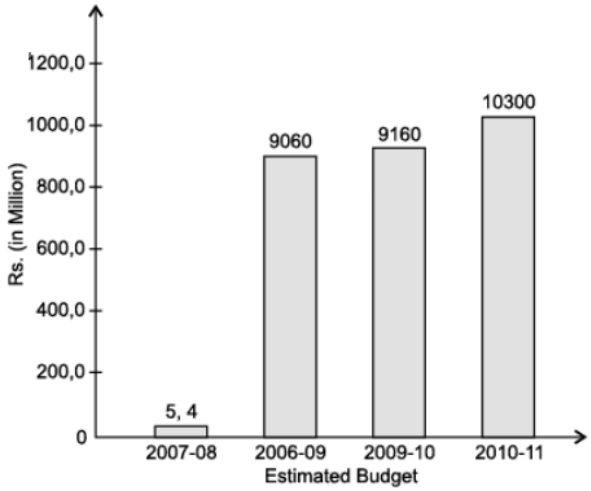
OR

How many countries are having child labor more than Mexico? (2)

54. **Read the following text carefully and answer the questions that follow:** **[4]**

Ladli Scheme was launched by the Delhi Government in the year 2008. This scheme helps to make women strong and will empower a girl child. This scheme was started in 2008.

The expenses for the scheme are plotted in the following bar chart.



i. What are the total expenses from 2009 to 2011? (1)

ii. What is the percentage of no of expenses in 2009-10 over the expenses in 2010-11? (1)

iii. What is the percentage of minimum expenses over the maximum expenses in the period 2007-2011? (2)

OR

What is the difference of expenses in 2010-11 and the expenses in 2006-09? (2)

Section E

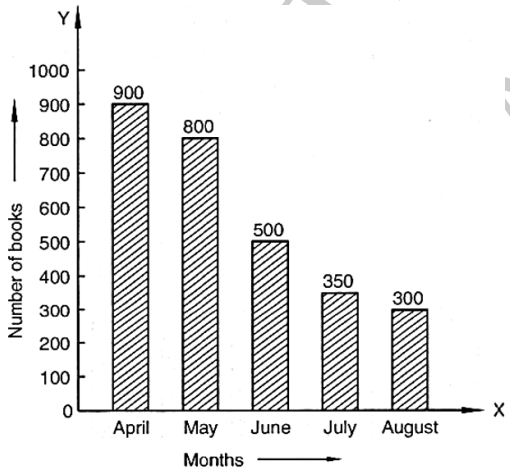
55. Read the following bar graph shown in Figure and answer the following questions: **[5]**

i. What is the information given by the bar graph?

ii. In which month was the sale of the book maximum?

iii. In which month was the sale of the book minimum?

iv. What is the total sale of the book during these five months?



56. The following table shows the daily production of T.V. sets in an industry for 7 days of a week: **[5]**

Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun
Number of T.V. Sets	300	400	150	250	100	350	200

Represent the above information by a pictograph.

57. There are 840 creatures in a zoo as per list given below: **[5]**

Beast animals	Other land animals	Birds	animals Water	Reptiles
120	345	165	135	75

Represent the above data by a bar chart.

58. Draw a histogram to represent the following information: **[5]**

Class interval	5-10	10-15	15-25	25—15	45-75
Frequency	6	12	10	8	18

59. The population of four major cities in India in a particular year is given below: **[5]**

City:	Mumbai	Kolkata	Delhi	Chennai
Number of students:	120	130	150	80

Construct a bar graph to represent the above data.

60. Represent the following frequency distribution by means of a histogram: **[5]**

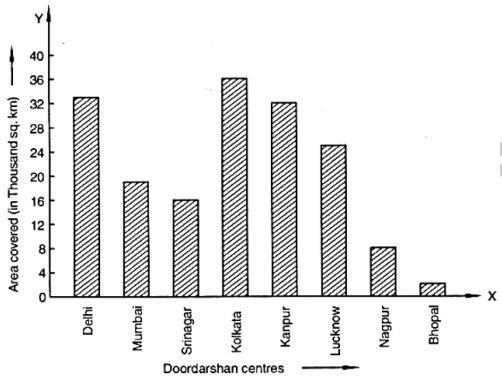
Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of students (Frequency)	7	11	9	13	16	4	2

61. The heights of 75 students in a school are given below: **[5]**

Height (in cm)	130-136	136-142	142-148	148-154	154-160	160-166
Number of students	9	12	18	23	10	3

Draw a histogram to represent the above data.

62. Read the bar graph given in Figure and answer the following questions: **[5]**



i. What information is given by the bar graph?

ii. Which Doordarshan centre covers maximum area? Also tell the covered area.

iii. What is the difference between the areas covered by the centres at Delhi and Bombay?

iv. Which Doordarshan centres are in U.P. State? What are the areas covered by them?

63. The daily wages of 50 workers in a factory are given below: **[5]**

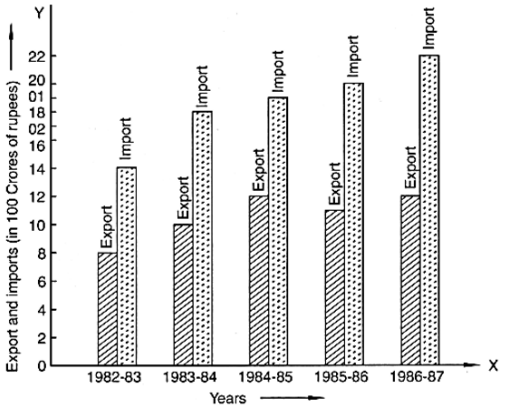
Daily wages (in ₹)	340-380	380-420	420-460	460-500	500-540	540-580
Number of workers	16	9	12	2	7	4

Construct a histogram to represent the above frequency distribution.

64. Depict the following frequency distribution by a histogram: **[5]**

Daily wages (in	500-525	525-550	550-575	575-600	600-625
Number of workers (Frequency)	20	15	25	30	10

65. Read the following bar graph and answer the following questions: **[5]**



i. What information is given by the bar graph?

ii. In which year the export is minimum?

iii. In which year the import is maximum?

iv. In which year the difference of the values of export and import is maximum?

66. The daily pocket expenses of 150 students in a school are given below: **[5]**

Pocket expenses (in ₹)	50-60	60-70	70-80	80-90	90- 100	100- 110	110- 120
Number of students (Frequency)	12	16	25	20	32	27	18

Construct frequency polygon representing the above data.

67. In a school, there are five sections of class IX. The number of students in each section is given below. Construct a bar graph representing this data: **[5]**

Section:	A	B	C	D	E
Number of students:	40	48	52	45	30

68. The following data gives the amount of loans (in crores of rupees) disbursed by a bank during some years: **[5]**

Year	1992	1993	1994	1995	1996
Loan (in crores of rupees)	28	33	55	55	80

i. Represent the above data with the help of a bar graph.

ii. With the help of the bar graph, indicate the year in which amount of loan is not increased over that of the preceding year.

69. A survey conducted by an organisation for the cause of illness and death among the women between the ages 15 **[5]**

- 44 (in years) worldwide, found the following figure (in %):

S.No.	Cause of illness and death	Female fatality rate (%)
1	Reproductive health conditions	32
2	Neuropsychiatric conditions	26
3	Injuries	13
4	Cardiovascular conditions	5
5	Respiratory conditions	4
6	Other causes	20

i. Represent the information given above graphically.

ii. Which condition is the major cause of women's ill health and death worldwide?

70. Construct a histogram for the following frequency distribution: **[5]**

Class interval	5-12	13-20	21-28	29-36	37-44	45-52
Frequency	6	15	24	18	4	9

71. Draw a histogram for the following data: **[5]**

Class interval	600-640	640-680	680-720	720-760	760-800	800-840
Frequency	18	45	153	288	171	63

Using this histogram, draw the frequency polygon on the same graph.

72. Draw a histogram and the frequency polygon from the following data: **[5]**

Class interval	20-25	25-30	30-35	35-40	40^5	45-50
Frequency	30	24	52	28	46	10

73. Read the bar graph shown in Figure and answer the following questions: **[5]**

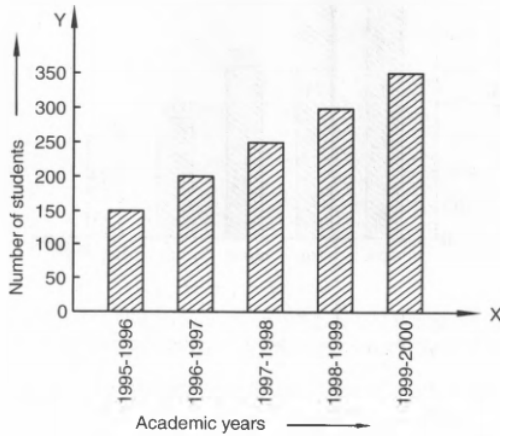
i. What is the information given by the bar graph?

ii. What is the order of the change of number of students over several years?

iii. In which year is the increase of students maximum?

iv. State whether true or false.

The enrolment during 1996-97 is twice that of 1995-96.



74. Draw a histogram to represent the following data: **[5]**

Class interval	10-14	14-20	20-32	32-52	52-80

Frequency	5	6	9	25	21

75. The air distances of four cities from Delhi (in km) are given below: **[5]**

City	Kolkata	Mumbai	Chennai	Hyderabad
Distance from Delhi (in km)	1340	1100	1700	1220

Draw a bar graph to represent the above data.