EXERCISE

A. Very Short Answer Type Questions

Q.1 The class marks of distribution are :
6, 10, 14, 18, 22, 26,30
Find the class size and the class interval.

Q.2 The class marks of distribution are : 47, 52, 57, 62, 67, 72, 77, 82, 87, 92, 97, 102.
Determine the class size, the class limits and the true class limits.

Q.3 Find the range of the following array of data :
70, 65, 71,36, 55, 61, 62, 41, 40, 39, 35.

Q.4 Draw the ogive of the following distribution table:

Class interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	10	5	8	6	6	4

Q.5 The weights (in kilograms) of 25 students are given as follows :
35, 38, 36, 37, 38, 35, 37, 36, 35, 38, 36, 36, 37, 37, 35, 38, 36, 35, 36, 37, 37, 38, 36, 38, 37.
Complete the following frequency table:

Weights	35	36	37	38
Frequency	–	–	–	–

Q.6 The marks scored by 55 students in a test are given below :

Marks	No. of students
0-5	2
5-10	6
10-15	13
15-20	17
20-25	11
25-30	4
30-35	2

Prepare a cumulative frequency table.

Q.7 Find the mean of all factors of 10.

Q.8 Find the mean of first 10 even natural numbers.

Q.9 Following are weights (in kg) of 10 new born babies in a hospital on a particular day :
3.4, 3.6, 4.2, 4.5, 3.9, 4.1, 3.8, 4.5, 4.4, 3.6.
Find the mean $\overline{X}$.

Q.10 Calculate the mean for the following distribution:

x :	5	6	7	8	9
f :	4	8	14	11	3

Q.11 Find the mean of the following distribution:

x :	10	12	20	25	35
f :	3	10	15	7	5

Q.12 Find out the mode of the following marks obtained by 15 students in a class:
Marks : 4, 6, 5, 7, 9, 8, 10, 4, 7, 6, 5, 9, 8, 7, 7

Q.13 Find the mode for the following series:
7.5, 7.3, 7.2, 7.2, 7.4, 7.7, 7.7, 7.5, 7.3, 7.2, 7.6, 7.2

Apply Direct method to find arithmetic mean in each of the following :

Q.14

Class-interval	0–6	6–12	12–18	18–24	24–30
Frequency	7	5	10	12	6

Q.15

Class-interval	0–10	10–20	20–30	30–40	40–50
Frequency	8	10	9	12	11

Q.16

Class-interval	100–120	120–140	140–160	160–180	180–200
Frequency	10	20	30	15	5

Q.17 Calculate the mode for the following frequency distribution.

Class-interval	0–4	4–8	8–12	12–16
Frequency	4	8	5	6

Q.18 Find out the mode for the following data showing frequency with which profits are made:

Profits (in '000 rupees)	Frequency
3 – 4	83
4 – 5	27
5 – 6	25
6 – 7	50
7 – 8	75
8 – 9	38
9 –10	18

Q.19 Find the mode of the following series :

Wages (Rs.)	No. of persons
0 – 25	10
25 – 50	30
50 – 75	40
75 – 100	25
100 – 125	20
125 – above	15

Q.20 Compute the mode of the following distribution

x	f
0 – 5	20
5 – 10	24
10 – 15	32
15 – 20	28
20 – 25	20
25 – 30	16
30 – 35	17
35 – 40	10
40 – 45	18

Q.21 Compute the mode for the following data :

Class	Frequency
10 – 20	24
20 – 30	42
30 – 40	56
40 – 50	66
50 – 60	108
60 – 70	130
70 – 80	154
80 – 90	140

B. Short Answer Type Questions

Q.22 A cumulative frequency distribution table is given. Convert this into a frequency distribution table.

Marks	below 45	below 60	below 75	below 90
Number of student	0	8	23	48

Q.23 Draw a frequency table for the following data:

C.I.	C.F.
111-120	6
121-130	11
131-140	16
141-150	20
151-160	27
161-170	36
171-180	42
181-190	45
191-200	50

Q.24 Form the cumulative frequency table of less than series from following data :

C.I.	Frequency
0-10	3
10-20	12
20-30	36
30-40	76
40-50	97
50-60	85
60-70	39
70-80	12
80-90	12
90-100	6

Q.25 Construct a c.f. table for the following data :

C.I.	Frequency
4-7	3
8-11	10
12-15	12
16-19	8
20-23	5
24-27	9

Q.26 Following data gives the number of children in 40 families :
1, 2, 6, 5, 1, 5, 1, 3, 2, 6, 2, 3, 4, 2, 0, 0, 4, 4, 3, 2, 2, 0, 0, 1, 2, 2, 4, 3, 2, 1, 0, 5, 1, 2, 4, 3, 4, 1, 6, 2, 2
Represent it in the form of a frequency distribution

Q.27 The water bills (in ruppees) of 32 houses in a certain street for the period 1.1.98 to 31.3.98 are given below :
56, 43, 32, 38, 56, 24, 68, 85, 52, 47, 35, 58, 63, 74, 27, 84, 69, 35, 44, 75, 55, 30, 54, 65, 45, 67, 95, 72, 43, 65, 35, 59.
Tabulate the data and present the data as cumulative frequency table using 70-79 as one of the clas intervals.

Q.28 The mean weight per student in a group of 7 students is 55 kg. The individual weights of 6 of them (in kg) are 52, 54, 55, 53, 56 and 54. Find the weight of the seventh student.

Q.29 The weights (in kg) of 15 students are : 31, 35, 27, 29, 32, 43, 37, 41, 34, 28, 36, 44, 45, 42, 30. Find the median. If the weight 44 kg is replaced by 46 kg and 27 kg by 25 kg, find the new median.

Q.30 Find the mode of the following data in each case:
(i) 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18
(ii) 7, 9, 12, 7, 12, 13, 15, 7, 12, 7, 25, 18, 7

Apply Deviation method to find arithmetic mean in each of the following:

Q.31

Class-interval	0–10	10–20	20–30	30–40	40–50
Frequency	9	12	15	10	14

Q.32

Class-interval	0–10	10–20	20–30	30–40	40–50
Frequency	12	11	8	10	9

Q.33

Class-interval	0–10	10–20	20–30	30–40	40–50
Frequency	7	8	12	13	10

Q.34

Class-interval	50–60	60–70	70–80	80–90	90–100
Frequency	9	12	14	15	10

Q.35

Class-interval	20–30	30–40	40–50	50–60	60–70	70–80
Frequency	13	18	20	27	12	10

Q.36

Class-interval	25–35	35–45	45–55	55–65	65–75
Frequency	6	10	8	12	4

Q.37

Class-interval	Frequency
0–50	4
50–100	10
100–150	12
150–200	10
200–250	8
250–300	6

Q.38

Class-interval	Frequency
0–20	8
20–40	10
40–60	15
60–80	10
80–100	7

Q.39

Class-interval	Frequency
0–10	7
10–20	10
20–30	15
30–40	8
40–50	10

Q.40

Class-interval	Frequency
0–10	8
10–20	12
20–30	10
30–40	11
40–50	9

Q.41 Find the mode for the following data :

Age	Frequency
0–6	6
6–12	11
12–18	25
18–24	35
24–30	18
30–36	12
36–42	6

Q.42 Find the mode for the following distribution

Class-interval	Frequency
0–10	5
10–20	8
20–30	7
30–40	12
40–50	28
50–60	20
60–70	10
70–80	10

Q.43 Calculate the mode for the following data concerning to the students of X class

Marks	No. of students
20–29	5
30–39	12
40–49	15
50–59	20
60–69	18
70–79	10
80–89	6
90–99	4

C. Long Answer Type Questions

Q.44 Find the unknown for the following distribution:

C.I.	Frequency	C.F.
10-20	12	x1
20-30	x2	25
30-40	10	x3
40-50	x5	43
50-60	x6	48
70-80	2	50

Q.45 Represent the following data by an ogive:

Daily earning	No. of shops
0-20	3
20-40	5
40-60	12
60-80	2
80-100	3
100-120	2
120-140	2
140-160	1

Q.46 Plot a cumulative frequency diagram the following distribution :

C.I.	Frequency
0-9	5
10-19	15
20-29	20
30-39	25
40-49	17
50-59	11
60-69	7

Q.47 Draw a cumulative frequency diagram.

Score	No. of students
20-30	20
30-40	35
40-50	40
50-60	32
60-70	24
70-80	27
80-90	18
90-100	34

Q.48 Draw an orgive to represent the following frequency distribution of marks scored by 750 students.

Marks	No. of students
600-640	16
640-680	45
680-720	156
720-760	284
760-800	172
800-840	59
840-880	18

Q.49 If $\overline{X}$ is the mean of the ten natural numbers $x_1, x_2, x_3, ..., x_{10}$, show that

$$(x_1 - \overline{X}) + (x_2 - \overline{X}) + ... + (x_{10} - \overline{X}) = 0$$

Q.50 The demand of different shirt sizes, as obtained by a survey, is given below :

size	38	39	40	41	42	43	44	Total
Number of persons (wearing it):	26	39	20	15	13	7	5	125

Find the modal shirt sizes, as observed from the survey

Apply short cut method to find arithmetic mean in each of the following :

Q.51

Class-interval	Frequency
0–30	12
30–60	18
60–90	22
90–120	24
120–150	17
150–180	7

Q.52

Class-interval	Frequency
0–50	17
50–100	24
100–150	42
150–200	45
200–250	36
250–300	14

Q.53

Class-interval	Frequency
0–8	8
8–16	10
16–24	15
24–32	9
32–40	8

Q.54 Determine the median from the following data :

Wages (in ₹)	No. of workers	Wages (in ₹)	No. of workers
20 – 40	4	100 – 120	12
40 – 60	6	120 – 140	7
60 – 80	10	140 – 160	3
80 – 100	16		

Q.55 Calculate the value of median,

Class :	Frequency
Below 10	1
10–15	2
15–20	5
20–25	7
25–30	10
30–35	7
35–40	5
40–45	2
45–50	1

Q.56 Draw an ogive for the following distribution. Read the median from the graph, and verify the result by calculation. How many workers earned wages between ₹ 60 and ₹ 72 ?

Weekly wages (in Rupees)	No. of workers
50–55	6
55–60	10
60–65	22
65–70	30
70–75	16
75–80	12
80–100	15

Q.57 The following is the frequency distribution of the marks obtained by 250 students in an examination. Compute the median

Marks obtained	No. of students
0 – 10	15
10 – 20	20
20 – 30	25
30 – 40	24
40 – 50	12
50 – 60	31
60 – 70	71
70 – 80	52

Q.58 Given the following information, determine the median

Age	No. of persons
20 – 25	50
25 – 30	70
30 – 35	100
35 – 40	180
40 – 45	150
45 – 50	120
50 – 55	70
55 – 60	60

Q.59 Following table gives the cumulative frequency of the age of a group of 199 teachers. Find the median age of the group.

Age in years	No. of persons
20 – 25	21
25 – 30	40
30 – 35	90
35 – 40	130
40 – 45	146
45 – 50	166
50 – 55	176
55 – 60	186
60 – 65	195
65 – 70	199

Q.60 Calculate the median wages of the following distribution of wages per thousand employees in a certain factory.

Daily wages	No. of employees
2 – 4	3
4 – 6	13
6 – 8	43
8 – 10	102
10 – 12	175
12 – 14	220
14 – 16	204
16 – 18	139
18 – 20	69
20 – 22	25
22 – 24	6
24 – 26	1

Q.61 Compute the median from the following distribution of monthly income (in Rs.) of locality.

No. of families	Income
Below 100	50
100 – 200	50
200 – 300	555
300 – 400	100
400 – 500	3
500 and above	2

Q.62 Draw a less than Ogive from the following frequency distribution.

Marks	No. of students
0 – 5	3
5 – 10	7
10 – 15	13
15 – 20	25
20 – 25	40
25 – 30	14
30 – 35	10

From the curve find out median.

Q.63 Draw a less than Ogive from the following frequency distribution.

Pocket Expences	No. of students
0 – 5	10
5 – 10	16
10 – 15	30
15 – 20	42
20 – 25	50
25 – 30	30
30 – 35	16
35 – 40	12

Find out the median from the curve.

Q.64 Draw a less than Ogive from the following frequency distribution.

Expenditure	No. of workers
100 – 150	25
150 – 200	40
200 – 250	33
250 – 300	28
300 – 350	30
350 – 400	22
400 – 450	16
450 – 500	8

Q.65 Draw a more than Ogive from the following frequency distribution

Class-interval	Frequency
100 – 150	4
150 – 200	6
200 – 250	13
250 – 300	5
300 – 350	2

Find out the median from the curve.

Q.66 Draw a cumulative frequency curve for the following frequency distribution by more than Ogive method also find the median from the curve.

Weight (in kg)	No. of students
40 – 44	7
44 – 48	12
48 – 52	33
52 – 56	47
56 – 60	20
60 – 64	11
64 – 68	5

ANSWER KEY

A. VERY SHORT ANSWER TYPE :

1. Class size = 4, Ist Class interval = 4 – 8 **2.** Class size = 5, Class limit for first class = 44.5, 49.4.

3. 36 **4.** C.f. (10, 15, 23, 29, 35, 39) **5.** 5, 7, 7,6

7. 4.5 **8.** 11 **9.** 4 **10.** 7.025 **11.** 20 **12.** 7 marks **13.** 7.2 **14.** 15.75 **15.** 26.6

16. 146.25 **17.** 6.29 **18.** 3.5971 **19.** ∔ .60 **20.** 13.33 **21.** 76.32

B. SHORT ANSWER TYPE :

28. 61 kg **29.** 35 kg, 35 kg **30.** (i) 14 (ii) 7 **31.** 26.3 **32.** 23.6 **33.** 27.2 **34.** 75.8

35. 48.7 **36.** 49.5 **37.** 151 **38.** 49.2 **39.** 25.8 **40.** 25.2 **41.** 20.22 **42.** 46.67

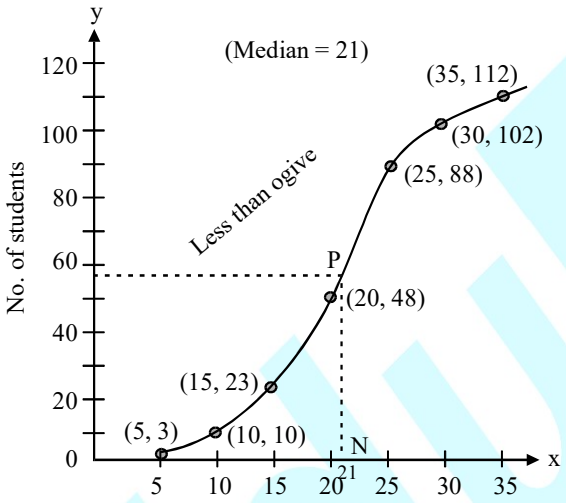
43. 57.14

C. LONG ANSWER TYPE :

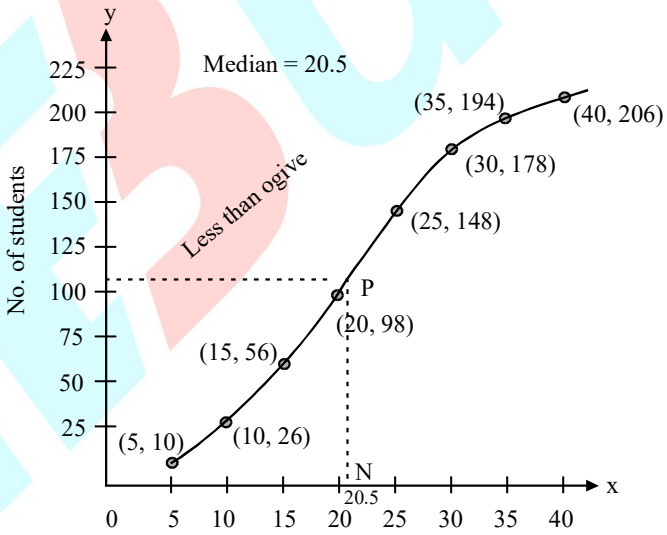
49. 0 **50.** 39 size **51.** 86.1 **52.** 153.4 **53.** 19.84 **54.** 91.25 **55.** 27.5

56. 67.92 **57.** 59.35 **58.** 40 **59.** 36.2 **60.** 13.49 **61.** 250.45

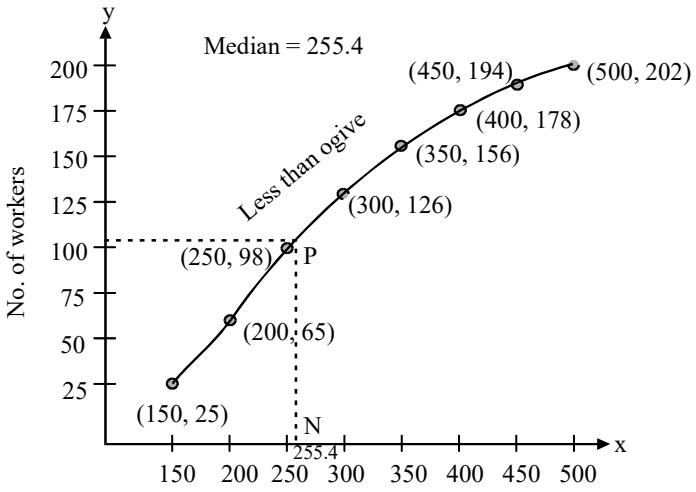
62.



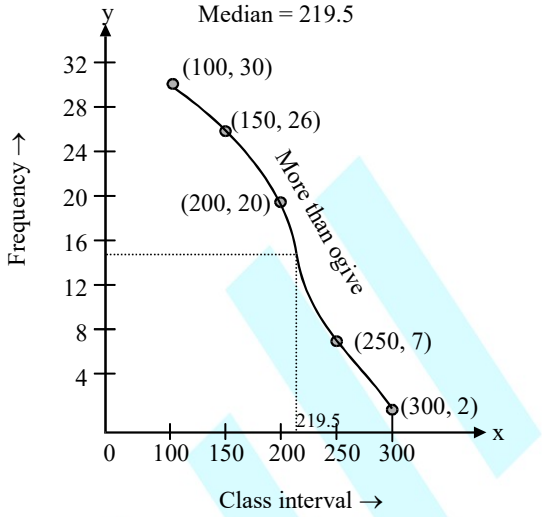
63.



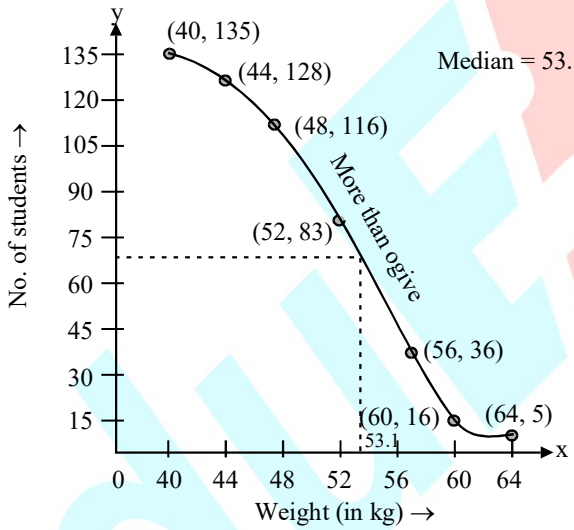
64.


y
Median = 255.4
200
175
150
125
100
75
50
25
No. of workers
(450, 194)
(500, 202)
(400, 178)
(350, 156)
(300, 126)
Less than ogive
(250, 98)
P
(200, 65)
(150, 25)
N
255.4
x
150 200 250 300 350 400 450 500

65.


y
Median = 219.5
32
28
24
20
16
12
8
4
Frequency →
(100, 30)
(150, 26)
(200, 20)
More than ogive
(250, 7)
(300, 2)
219.5
x
0 100 150 200 250 300
Class interval →

66.


y
(40, 135)
(44, 128)
Median = 53.1
(48, 116)
135
120
105
90
75
60
45
30
15
No. of students →
More than ogive
(52, 83)
(56, 36)
(60, 16)
(64, 5)
53.1
x
0 40 44 48 52 56 60 64
Weight (in kg) →