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1. Draw histograms for the following frequency distributions:

(i)

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	12	20	26	18	10	6

(ii)

Class Interval	10-16	16-22	22-28	28-34	34-40
Frequency	15	23	30	20	16

(iii)

Class Interval	30-39	40-49	50-59	60-69	70-79
Frequency	24	16	09	15	20

(iv)

Class Marks	16	24	32	40	48	56	64
Frequency	8	12	15	18	25	19	10

Solution:

(i)

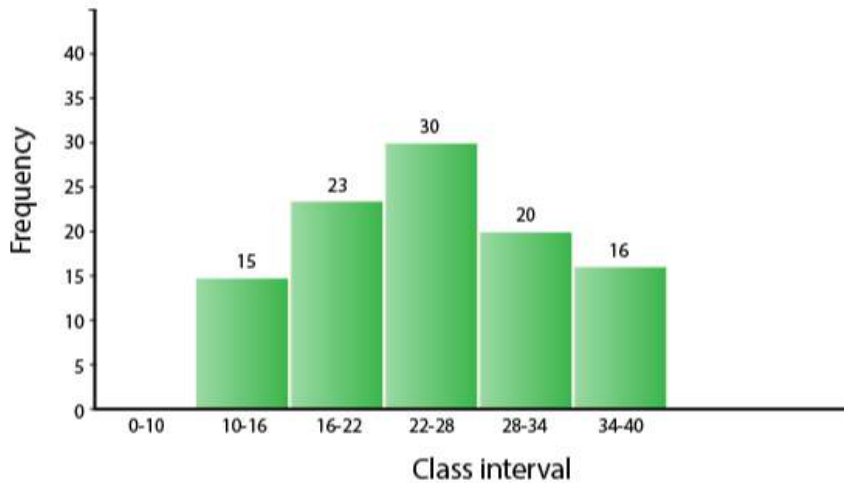| Class Interval	Frequency
0-10	12
10-20	20
20-30	26
30-40	18
40-50	10
50-60	06
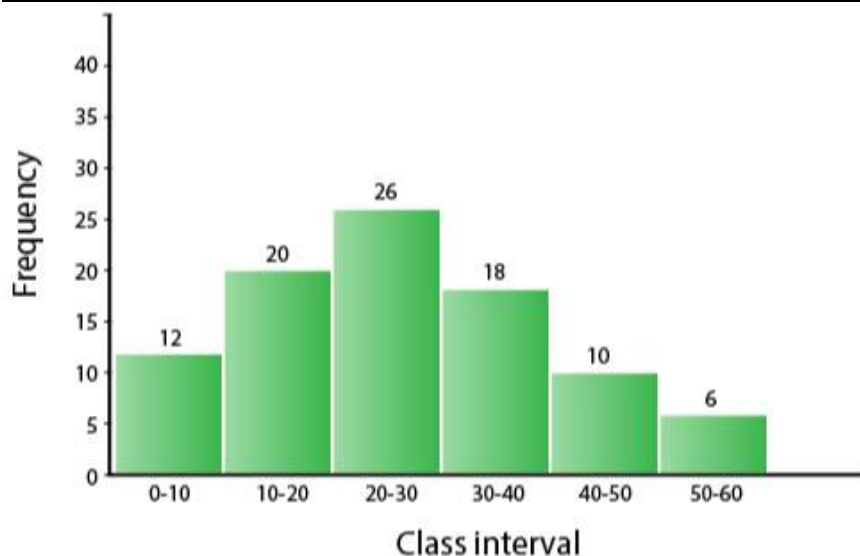
Steps of construction:

(a) Taking suitable scales, mark the class intervals on x-axis and the frequencies on y-axis.

(b) Construct rectangles with class intervals as bases and corresponding frequencies as heights.

(ii)

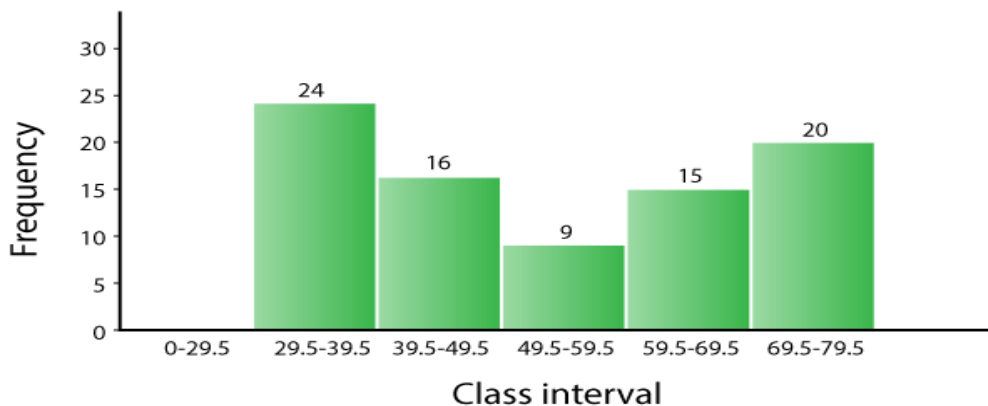| Class Interval	Frequency
10-16	15
16-22	23
22-28	30
28-34	20
34-40	16

Steps of construction:
(a) Taking suitable scales, mark the class intervals on x-axis and frequency on y-axis.
(b) Construct rectangles with class intervals as bases and corresponding frequencies as heights.

(iii)

| Class Interval (Inclusive form)	Class Interval (Exclusive Form)	Frequency
30-39	29.5-39.5	24
40-49	39.5-49.5	16
50-59	49.5-59.5	09
60-69	59.5-69.5	15
70-79	69.5-79.5	20

Steps of construction:
(a) Convert the data into exclusive form. [Here, adjustment factor = 0.5]
(b) Taking suitable scales, mark the class intervals on x-axis and the frequency on y-axis.
(c) Construct rectangles with class intervals as bases and corresponding frequencies as heights.

(iv)
From the given data:

Class Marks	Class Intervals	Frequency
16	12-20	08
24	20-28	12
32	28-36	15
40	36-44	18
48	44-52	25
56	52-60	19
64	60-68	10
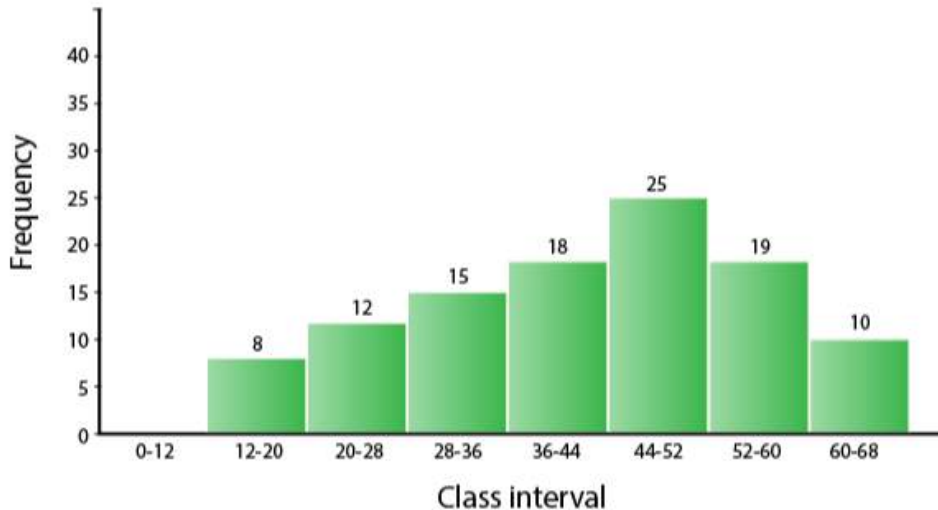
Steps of construction:
(a) Convert the class marks into class intervals.
(b) Taking suitable scales, mark class intervals on x-axis and frequency on y-axis.
(c) Construct rectangles with class intervals as bases and corresponding frequencies as heights.

2. Draw cumulative frequency curve (ogive) for each of the following distributions:
(i)

Class Interval	10-15	15-20	20-25	25-30	30-45	35-40
Frequency	10	15	17	12	10	08

(ii)

Class Interval	10-19	20-29	30-39	40-49	50-59
Frequency	23	16	15	20	12

Solution:

(i)

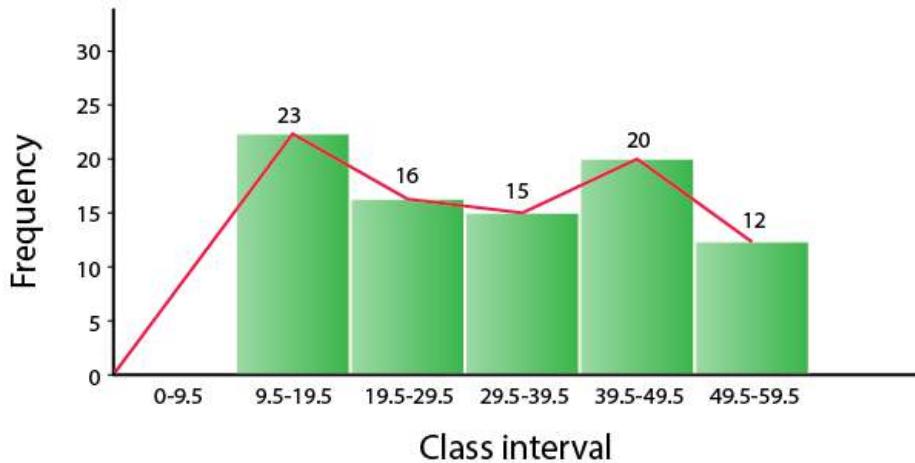| Class Interval	Frequency
10-15	10
15-20	15
20-25	17
25-30	12
30-35	10
35-40	08
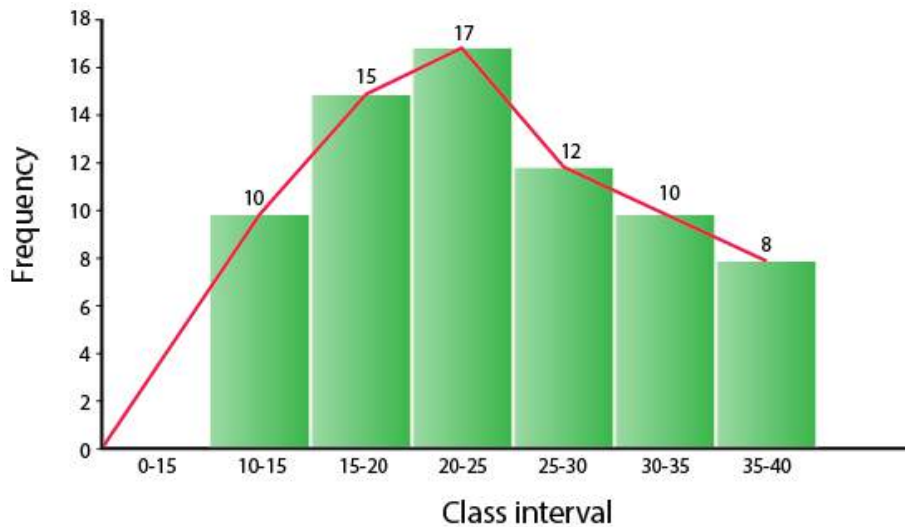
Steps of construction:
(a) Taking suitable scales, mark the class intervals on x-axis and the frequencies on y-axis.
(b) Construct rectangles with class intervals as bases and corresponding frequencies as heights.
(c) Join the mid-points of the rectangle to obtain the ogive.

(ii)

Class Interval (Inclusive)	Class Interval (Exclusive)	Frequency	Cumulative Frequency
10-19	9.5-19.5	23	23
20-29	19.5-29.5	16	39
30-39	29.5-39.5	15	54
40-49	39.5-49.5	20	74
50-59	49.5-59.5	12	86
		Total	86

Steps of construction:
(a) Convert the data into exclusive form. [Here, adjustment factor = 0.5]
(b) Taking suitable scales, mark the class intervals on x-axis and the frequencies on y-axis.
(c) Construct rectangles with class intervals as bases and corresponding frequencies as heights.
(d) Join the mid-points of the rectangle to obtain the ogive.

3. Draw an ogive for each of the following distributions:
(i)

Marks Obtained	less than 10	less than 20	less than30	less than 40	less than 50
No. of Students	8	25	38	50	67

(ii)

Age in years (less than)	10	20	30	40	50	60	70
Cumulative Frequency	0	17	32	37	53	58	65

Solution:

(i)

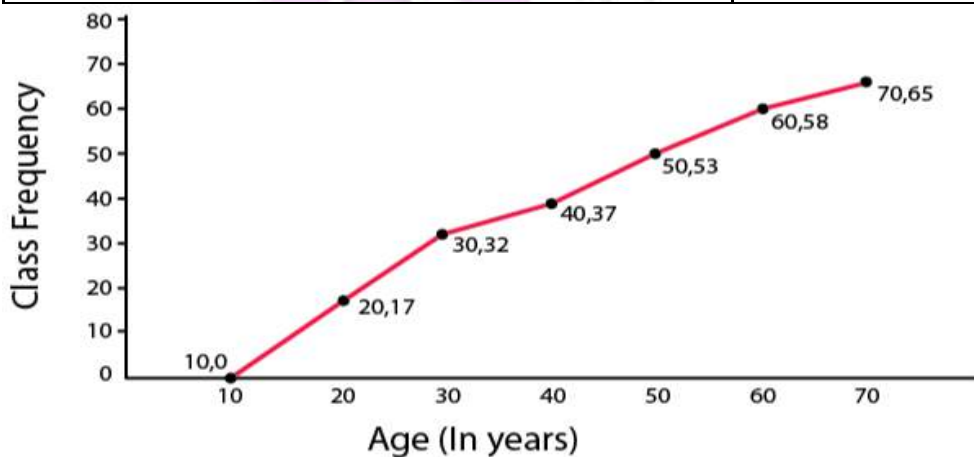| Marks Obtained	No. of students (c.f.)
less than 10	8
less than 20	25
less than 30	38
less than 40	50
less than 50	67
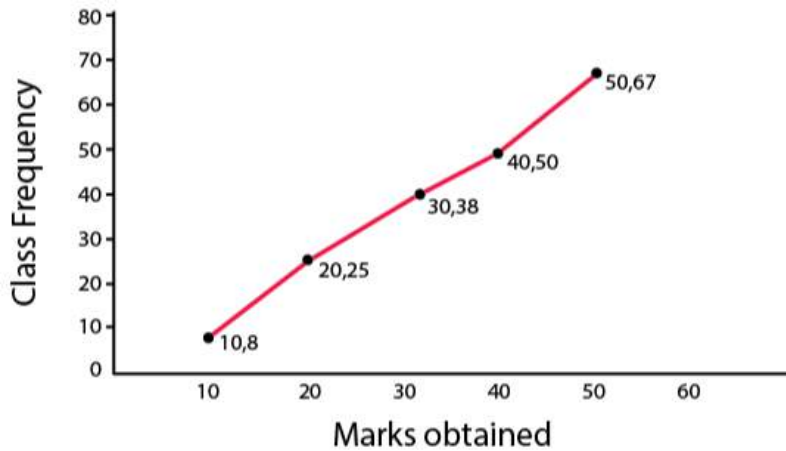
Steps Of construction:
(a) Plot the points (10, 8), (20, 25), (30, 38), (40, 50) and (50, 67) on the graph.
(b) Join them with free hand to obtain an ogive.

(ii)

Age in years (less than)	Cumulative Frequency
10	0
20	17
30	32
40	37
50	53
60	58
70	65

Steps Of construction:
(a) Plot the points (10, 0), (20, 17), (30, 32), (40, 37), (50, 53), (60, 58) and (70, 65) on the graph.
(b) Join them with free hand to obtain an ogive.

4. Construct a frequency distribution table for the number given below, using the class intervals 21-30, 31-40 … etc.

75, 67, 57, 50, 26, 33, 44, 58, 67, 75, 78, 43, 41, 31, 21, 32, 40, 62, 54, 69, 48, 47, 51, 38, 39, 43, 61, 63, 68, 53, 56, 49, 59, 37, 40, 68, 23, 28, 36, 47
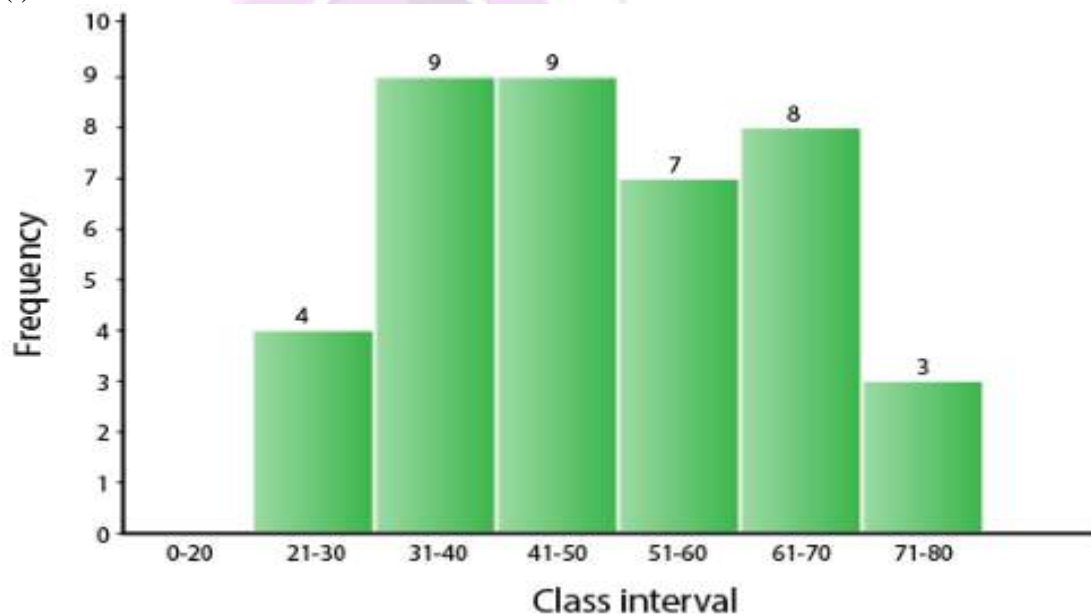
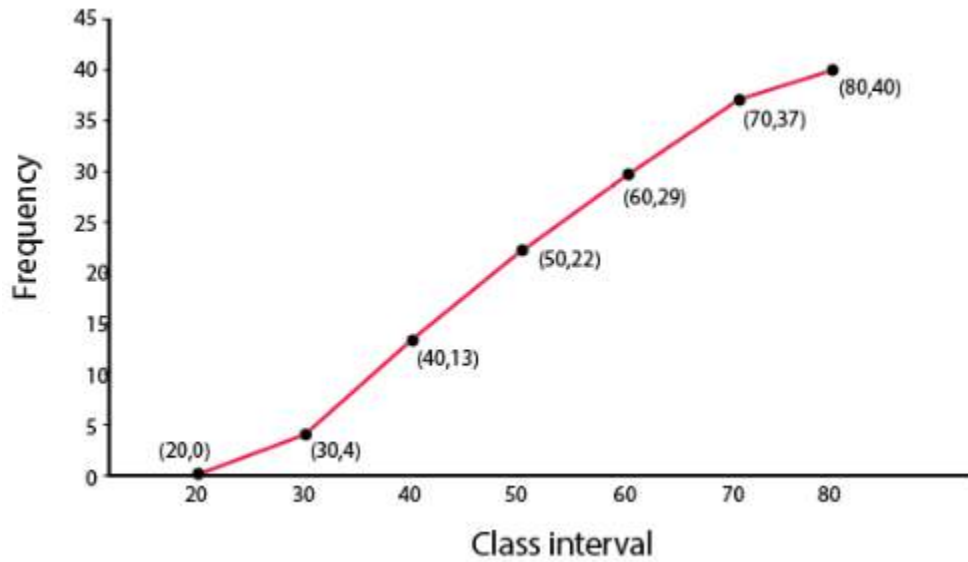**Use the table obtained to draw:**

(i) a histogram (ii) an ogive

Solution:

Class Interval	Tally	Frequency	c.f.
21 - 30	||||	4	4
31 - 40	ℕℕ ||||	9	13
41 - 50	ℕℕ ||||	9	22
51 - 60	ℕℕ ||	7	29
61 - 70	ℕℕ |||	8	37
71 - 80	|||	3	40

(i)

(ii)

Plot the points (30,4), (40,13), (50,22), (60,29), (70,37) and (80,40) on the graph and join them with free hand to obtain an ogive.