BIOSTATISTICS – UNIT I
O GIVE CURVES

LESS THAN AND MORE THAN O GIVE CURVE

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27.08.2020

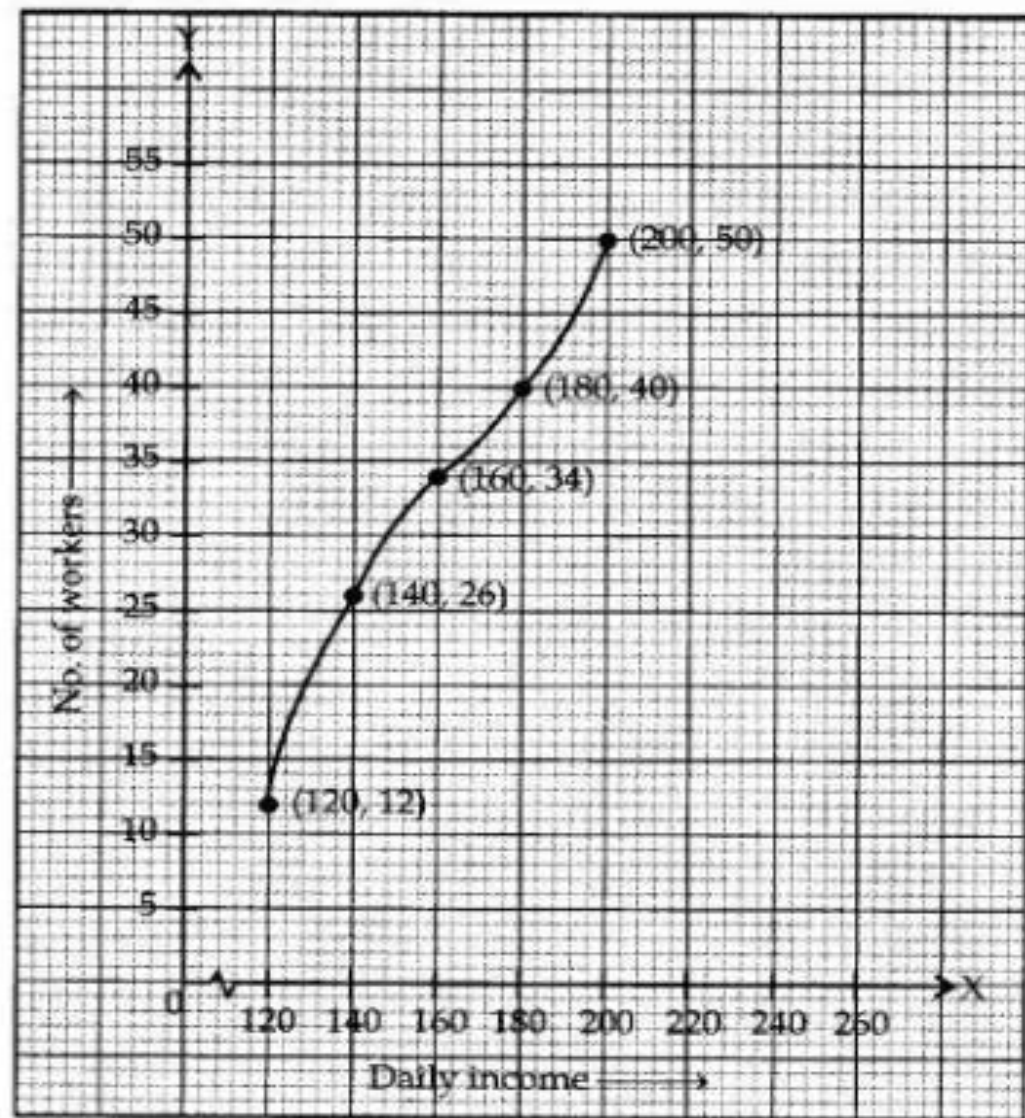The following distribution gives the daily income of 50 workers of a factory.

Daily income (in ₹)	No. of workers
100 – 120	12
120 – 140	14
140 – 160	8
160 – 180	6
180 – 200	10

Convert the distribution above to a less than type cumulative frequency distribution, and draw its ogive.

Solution:

Daily income (in ₹)	No. of workers	Cumulative frequency
Less than 120	12	12
Less than 140	14	26
Less than 160	8	34
Less than 180	6	40
Less than 200	10	50
	$n = 50$	

Now, we plot the points (120, 12), (140, 26), (160, 34), (180, 40) and (200, 50) to get the required ogive as shown alongside.

The following table gives production yield per hectare of wheat of 100 farms of a village.
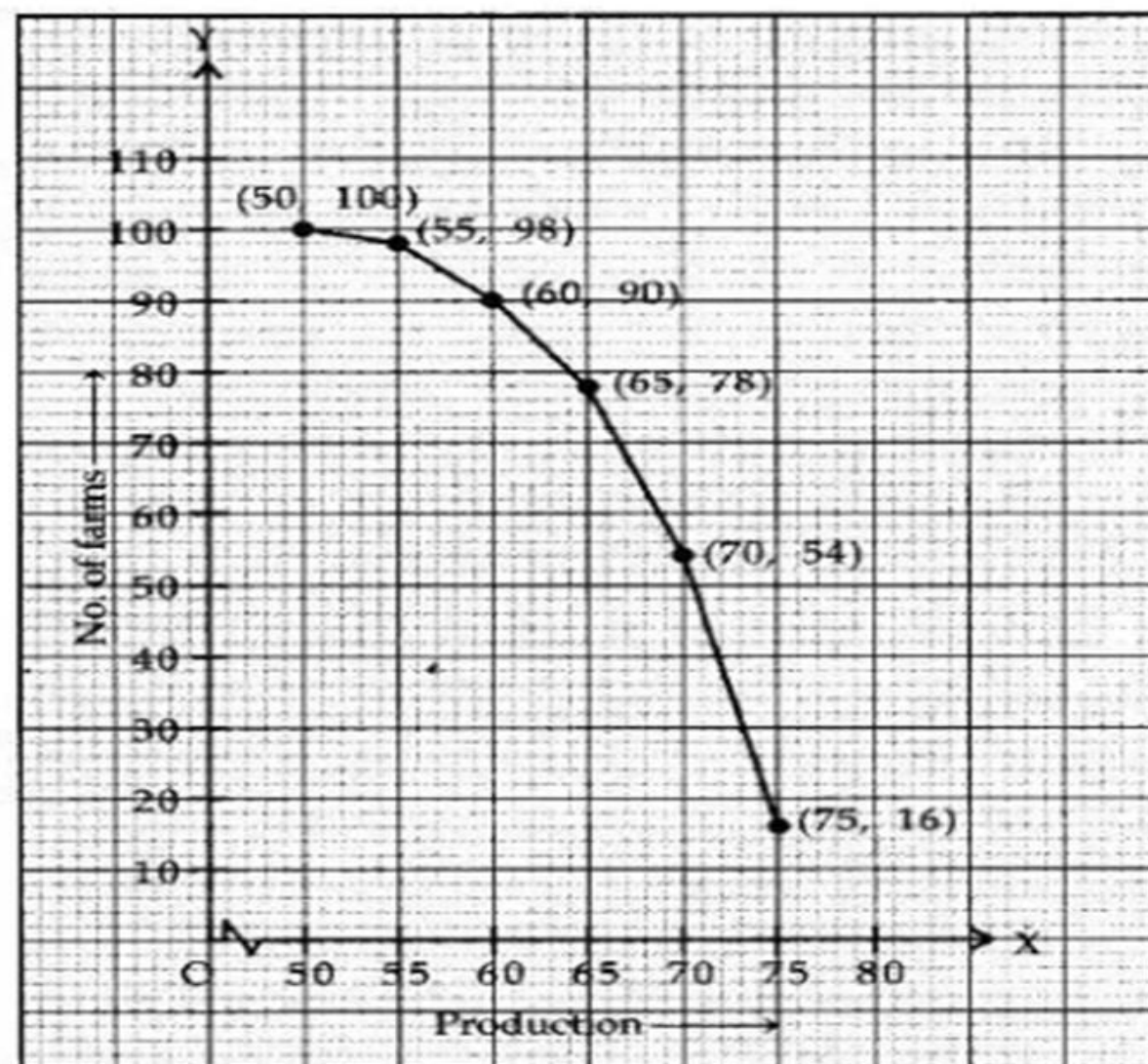
Production yield (in kg/ha)	No. of farms
50 – 55	2
55 – 60	8
60 – 65	12
65 – 70	24
70 – 75	38
75 – 80	16

Change the distribution to a more than type distribution, and draw its ogive.

Solution:

Production yield (in kg/ha)	No. of farms (frequency)	Cumulative frequency
More than or equal to 50	2	100
More than or equal to 55	8	$100 - 2 = 98$
More than or equal to 60	12	$98 - 8 = 90$
More than or equal to 65	24	$90 - 12 = 78$
More than or equal to 70	38	$78 - 24 = 54$
More than or equal to 75	16	$54 - 38 = 16$
	$n = 100$	

Now, we plot the points (50, 100), (55, 98), (60, 90), (65, 78), (70, 54) and (75, 16) to get the required ogive as shown below.

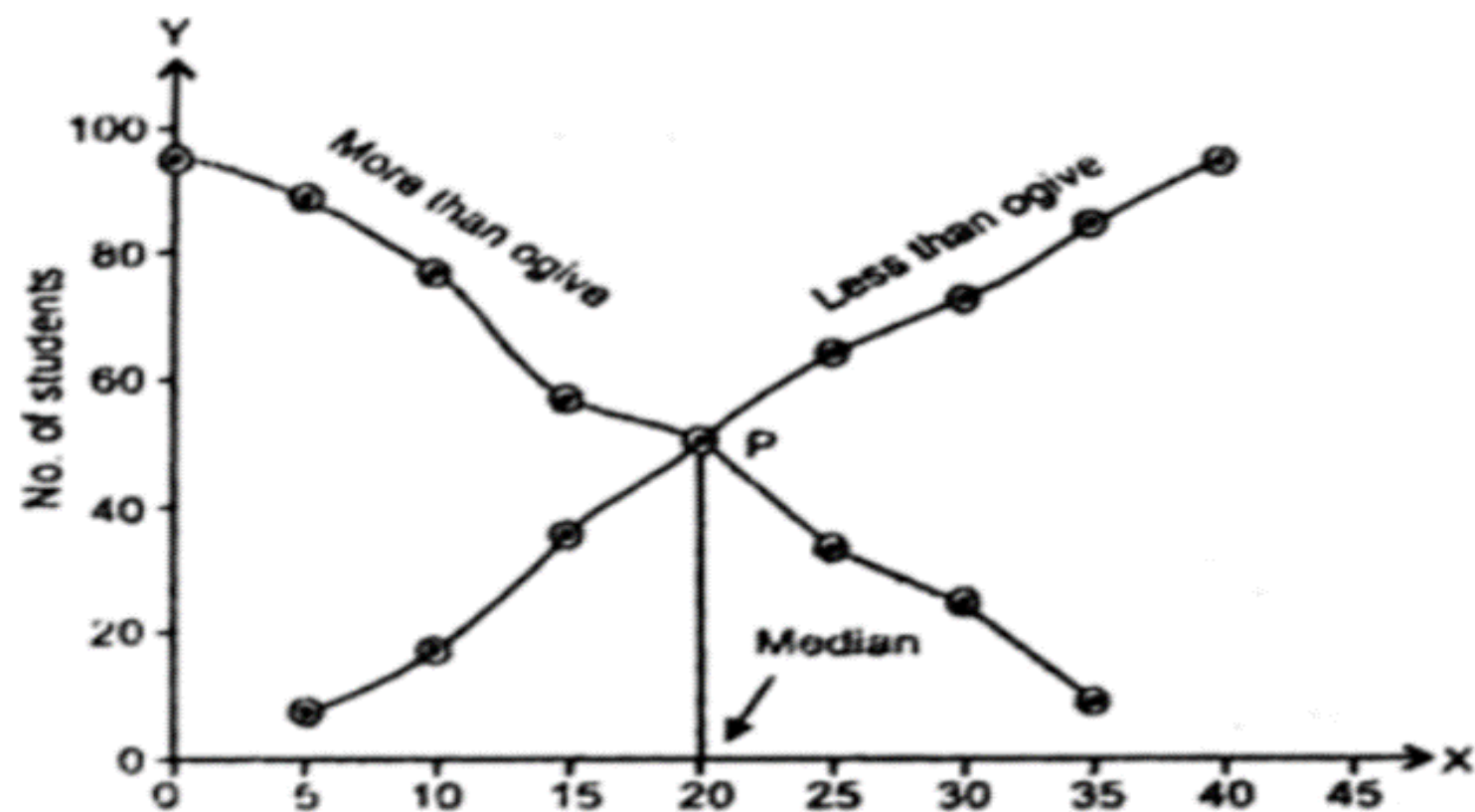Draw 'less than' and 'more than' ogive curve from the following and indicate the value of median.

Marks	No. of students (f)
0-5	7
5-10	10
10-15	20
15-20	13
20-25	12
25-30	10
30-35	14
35-40	9

c.f. distribution

Marks	No. of students	c.f. (Less than)	c.f (More than)
0-5	7	7	95
5-10	10	17	88
10-15	20	37	78
15-20	13	50	58
20-25	12	62	45
25-30	10	72	33
30-35	14	86	23
35-40	9	95	9

Now we plot the points (5,7), (10,17), (15,37), (20, 50), (25, 62), (30, 72), (35, 86), (40, 95) for less than series. And (0,95), (5,88), (10,78), (15,58), (20, 45), (25,33), (30,23), (35,9) for more than series.

The two curves drawn intersect each other at P. Through this P, draw a vertical line, which meets the x-axis at 20. So median = 20.

- The Ogive is defined as the frequency distribution graph of a series.
- The Ogive is a graph of a cumulative distribution, which explains data values on the horizontal plane axis and either the cumulative relative frequencies, the cumulative frequencies or cumulative per cent frequencies on the vertical axis.

- Cumulative frequency is defined as the sum of all the previous frequencies up to the current point.

- The two methods of Ogives are:
- Less than Ogive
- Greater than or more than Ogive

- Less than Ogive
- The frequencies of all preceding classes are added to the frequency of a class.
- This series is called the less than cumulative series.
- It is constructed by adding the first-class frequency to the second-class frequency and then to the third class frequency and so on.
- The downward cumulation results in the less than cumulative series.

- Greater than or More than Ogive

- The frequencies of the succeeding classes are added to the frequency of a class.

- This series is called the more than or greater than cumulative series.

- It is constructed by subtracting the first class, second class frequency from the total, third class frequency from that and so on.

- The upward cumulation result is greater than or more than the cumulative series.

Draw 'less than' and 'more than' ogive curve from the following and indicate the value of median.

CLASS IN TERVAL வகுப்பு இடைவெளி	Frequency அலைவெண்
10 - 20	2
20 - 30	5
30 - 40	8
40 - 50	7
50 – 60	6
60 -70	3
70 – 80	2