

## UNIT-11: STATISTICS

### A) One mark questions:

- 1) Which are the measures of central tendency?
- 2) Mention the empirical relationship between three central tendency

OR

- 3) Mention the relationship between mean, median and mode.

**Fill in the blanks with suitable answer for the following questions:**

- 4)  $3 \text{ Median} = \text{Mode} + 2 \text{ _____}$
- 5)  $3 \text{ Median} = \text{_____} + 2 \text{ Mean.}$
- 6)  $3 \text{ _____} = \text{Mode} + 2 \text{ Mean.}$
- 7) The midpoint of 10 – 30 is \_\_\_\_\_
- 8) The midpoint of 20 – 35 is \_\_\_\_\_
- 9) If the mean of 12 scores is 26.5, then the sum of all the scores is \_\_\_\_\_
- 10) 42, 35, 34, 61, 28, 35, 75, 81, 90 : Mode of the given data is \_\_\_\_\_

### B) Three marks questions:

- 1) Find the mean for the following data.

Class Interval	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Frequency	4	6	12	5	3

OR

- 2) Given below are the data of marks obtained by 30 students in a class in Mathematics subject. Find the Mean of marks obtained by the students.

<b>Marks obtained</b>	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
<b>Number of students</b>	4	6	12	5	3

OR

- 3) In a high school, an activity was conducted by Eco club. In that activity, leaves of different plants were exhibited. Students were to identify the leaves and tell the names of the plants. 30 students participated in that activity, that data is given below. Find the mean of the plants identified by the students.

<b>Number of plants</b>	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
<b>Number of students</b>	4	6	12	5	3

OR

- 4) In an organisation, information of 30 working staff was collected. The distance from the organisation to their homes is given below. Find the mean of the distance from the organisation to their homes.

<b>Distance ( in Km )</b>	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
<b>Number of workers</b>	4	6	12	5	3

- 5) Find the mean for the following data.

<b>Class Interval</b>	1 – 5	5 – 9	9 – 13	13 – 17	17 – 21
<b>Frequency</b>	4	3	5	7	1

OR

- 6) The following table gives the information regarding the teachers works in 20 schools. Find the mean of number of teachers.

<b>Number of teachers</b>	1 – 5	5 – 9	9 – 13	13 – 17	17 – 21
<b>Number of schools</b>	4	3	5	7	1

OR

- 7) A survey was made in a village for 20 families, and the number of family members is given below. Find the mean of family members.

<b>Number of members</b>	1 – 5	5 – 9	9 – 13	13 – 17	17 – 21
<b>Number of families</b>	4	3	5	7	1

- 8) Find the mean for the following data.

<b>Class Interval</b>	10 – 25	25 – 40	40 – 55	55 – 70	70 – 85	85 – 100
<b>Frequency</b>	2	3	7	6	6	6

OR

- 9) The marks obtained by 30 students of class 10 of certain school in a Mathematics paper consisting of 100 marks are presented in table below. Find the mean of the marks obtained by the students.

<b>Marks</b>	10 – 25	25 – 40	40 – 55	55 – 70	70 – 85	85 – 100
<b>Number of students</b>	2	3	7	6	6	6

- 10) To find out the concentration of  $\text{SO}_2$  in the air (in parts per million, i.e. ppm), the data was collected for 30 localities in a certain city and is presented below. Find the mean concentration of  $\text{SO}_2$  in the air.

<b>Concentration of <math>\text{SO}_2</math> (in ppm)</b>	0.00 – 0.04	0.04 – 0.08	0.08 – 0.12	0.12 – 0.16	0.16 – 0.20	0.20 – 0.24
<b>Frequency</b>	4	9	9	2	4	2

- 11) The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is Rs.18. Find the missing frequency “ f “ .

<b>Daily pocket allowance (in Rs)</b>	11 – 13	13 – 15	15 – 17	17 – 19	19 – 21	21 – 23	23 – 25
<b>Number of children</b>	7	6	9	13	f	5	4

- 12) Find the mode for the following data.

<b>Class Interval</b>	5 – 15	15 – 25	25 – 35	35 – 45	45 – 55	55-65
<b>Frequency</b>	6	11	21	23	14	5

OR

- 13) The following table shows the ages of the patients admitted in a hospital during a month. Find the mode of the data given below.

<b>Age (in years)</b>	5 – 15	15 – 25	25 – 35	35 – 45	45 – 55	55-65
<b>Number of patients</b>	6	11	21	23	14	5

- 14) Find the mode for the following data.

<b>Class Interval</b>	1 – 5	5 – 9	9 – 13	13 – 17	17 – 21	21-25
<b>Frequency</b>	4	4	5	7	5	5

OR

- 15) The following table gives the daily expenses done by 30 students of a school. Find the mode of this data.

<b>Daily expenses (In Rs)</b>	1 – 5	5 – 9	9 – 13	13 – 17	17 – 21	21 – 25
<b>Number of students</b>	4	4	5	7	5	5

16) Find the median for the following grouped data. OR

17) In the column below is given the marks scored by 53 students out of 100 marks in a school. Find the median of this.

Marks	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80	80–90	90–100
Number of Students	5	3	4	3	3	4	7	9	7	8

18) The following frequency distribution gives the monthly consumption of electricity of 64 consumers of a locality. Find the median for the following data.

Monthly Consumption (in units)	65 -85	85 – 105	105 – 125	125 – 145	145 – 165	165 -185
Number of consumers	4	5	13	20	14	8

OR

19) The distribution below gives the heights of 64 students of a school. Find the median height of the students.

Heights (in cm)	65 -85	85 – 105	105 – 125	125 – 145	145 – 165	165 -185
Number of students	4	5	13	20	14	8

20) The distribution below gives the weights of 30 students of a class. Find the median weight of the students.

Weights (in Kgs)	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75
Number of students	2	3	8	6	6	3	2

- 21) The marks obtained by 30 students of class in a Mathematics paper consisting of 75 marks are presented in table below. Find the median of the marks obtained by the students.

Marks	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75
Number of students	2	3	8	6	6	3	2

- 22) The distribution below given, is the number of coconut trees present in the coconut farms of 51 people of a village. Find the median of the given data.

Number of coconut trees	Number of farms
Less than 140	4
Less than 145	11
Less than 150	29
Less than 155	40
Less than 160	46
Less than 165	51

OR

- 23) A survey regarding the heights (in cm) of 51 girls of class 10<sup>th</sup> of a school was conducted and the following data was obtained. Find the median of this.

Heights (in cm)	Number of girls
Less than 140	4
Less than 145	11
Less than 150	29
Less than 155	40
Less than 160	46
Less than 165	51

- 24) If the median of distribution given below is 28.5 then find the values of  $x$  and  $y$ .

Class Interval	Frequency
0 – 10	5
10 – 20	$x$
20 – 30	20
30 – 40	15
40 – 50	$y$
50 – 60	5
<b>Total</b>	<b>60</b>

### C) Ogive Graphs:

- 1) A) Draw a Less than type Ogive for the following data.

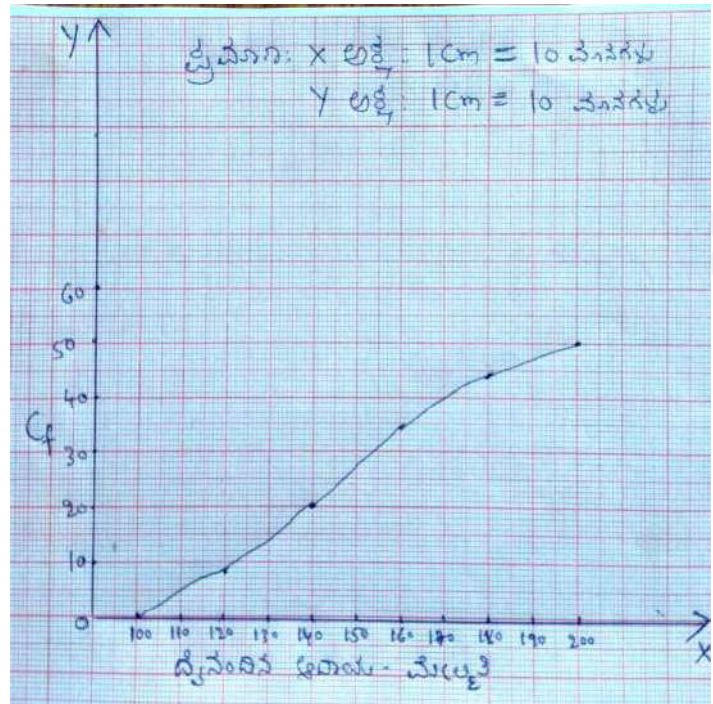
Daily Income (In Rs)	Less than 100	Less than 120	Less than 140	Less than 160	Less than 180	Less than 200
<b>No. of workers</b>	<b>0</b>	<b>8</b>	<b>20</b>	<b>34</b>	<b>44</b>	<b>50</b>

- B) The following distribution gives the daily income of 50 workers of a factory. Draw a less than type Ogive.

Daily Income (In Rs)	80-100	100-120	120-140	140-160	160-180	180-200
<b>No. of Workers</b>	<b>0</b>	<b>8</b>	<b>12</b>	<b>14</b>	<b>10</b>	<b>6</b>

- C) Convert the above distribution to a less than type cumulative frequency distribution and draw its Ogive.

Daily Income (In Rs)	No. of workers
Less than 100	0
Less than 120	8
Less than 140	20
Less than 160	34
Less than 180	44
Less than 200	50



2. A) Draw a more than type Ogive for the following data

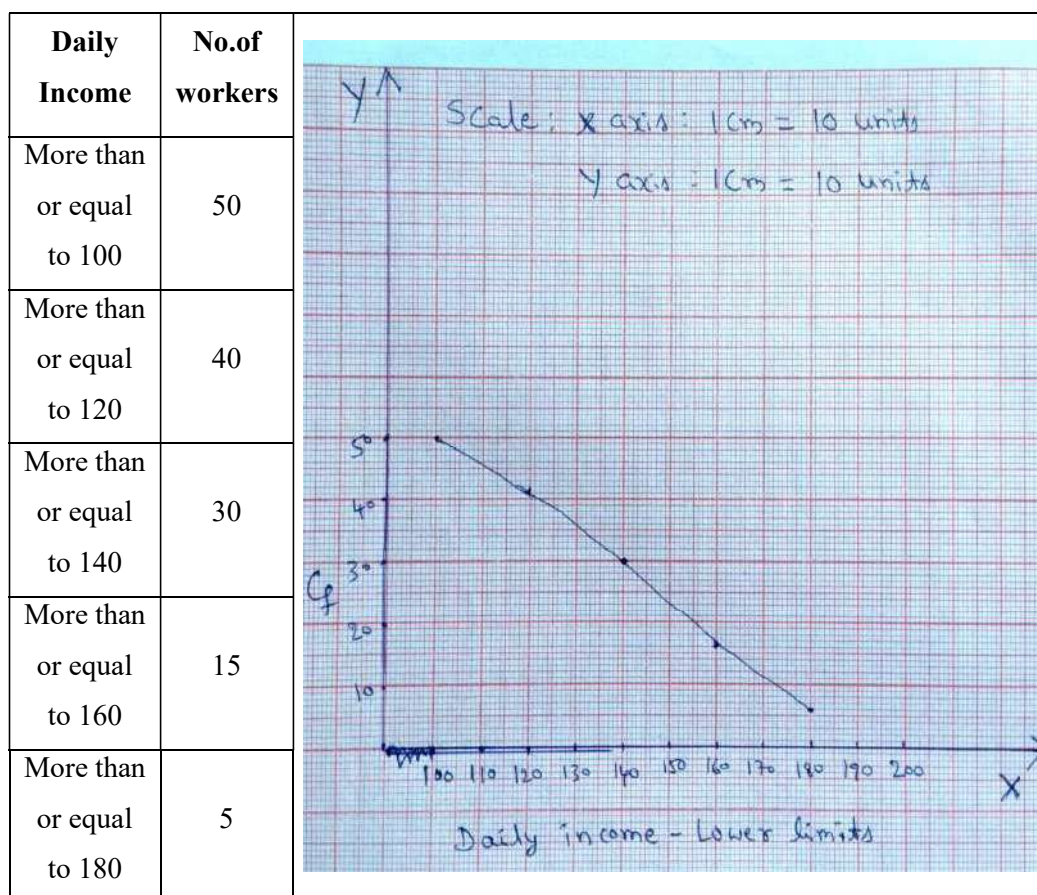
Daily Income	No. of workers
More than or equal to 100	50
More than or equal to 120	40
More than or equal to 140	30
More than or equal to 160	15
More than or equal to 180	5



- B) The following distribution gives the daily income of 50 workers of a factory. Draw more than type Ogive.

Daily Income	100-120	120-140	140-160	160-180	180-200
No. of workers	10	10	15	10	5

- C) Change the above distribution to a more than type distribution and draw its ogive.



3. A) Draw a less than type Ogive for the following data.

No. of marks	No. of students
Less than 10	5
Less than 20	20
Less than 30	40
Less than 40	55
Less than 50	60

- B) The following distribution shows the marks scored by the students in Mid-term exam. Draw a less than type Ogive and hence obtain the Median marks from the graph.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5	15	20	15	5

### Practice the following

1. Find the Mean, Median & Mode and also less than type ogive for the following data

Class Interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	2	4	8	4	2

Class Interval	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	4	8	24	8	6

2. Find the Mean, Median & Mode and also more than type ogive for the following data

Class Interval	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	2	4	8	4	2

Class Interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	10	12	16	8	4

3. The mean of the following distribution table is 62. Find the missing frequency  $f$ .

Class Interval	10 – 25	25 – 40	40 – 55	55 – 70	70 – 85	85 – 100
Frequency	2	3	7	$f$	6	6

4. The median of the following data is 525. Find the values of  $x$  and  $y$ , if the total frequency is 100.

Class Interval	Frequency
0 – 100	2
100 – 200	5
200 – 300	$X$
300 – 400	12
400 – 500	17
500 – 600	20
600 – 700	$Y$
700 – 800	9
800 – 900	7
900 – 1000	4