**Practical No. 1**

**STATEMENT:** PREPARE A FREQUENCY DISTRIBUTION FROM THE FIGURE RELATING TO BONUS (Rs) PAID TO THE WORKERS.

BONUS PAID TO WORKERS:

57, 103, 106, 101, 71, 73, 74, 75, 86, 62, 58, 73, 101, 90, 76, 61, 86, 63, 56, 72, 102, 56, 83, 92, 87, 60, 83, 69, 57, 87, 93, 88, 59, 76, 70, 54, 70, 104, 58, 88, 94, 89, 57, 67, 60, 60, 70, 84, 83, 91, 100, 82, 78, 76, 74, 70, 80, 101, 90, 60, 65, 70, 80, 60, 61, 63, 67, 90, 96, 94, 92, 81, 82, 83, 85, 91, 93, 94, 96, 76, 102, 101, 92, 81, 86, 88, 53, 103, 51, 63, 78, 86, 92, 100, 86, 87, 92, 73.

BY USING APPROPRIATE SOFTWARE

1. CONSTRUCT A CONTINUOUS FREQUENCY DISTRIBUTION OF THE BONUS PAID TO THE WORKERS IN THE MANNERS OF 50 - 60, 60 - 70 AND SO ON.
2. COMPUTE AVERAGE AND MEDIAN BONUS PAID TO EACH WORKER.

**WORKING EXPRESSION:**

1. **Frequency Distribution:** A table containing varied value with their respective frequencies is called frequency distribution. If the frequency distribution is made by taking some class table then it is said to be continuous (grouped) frequency distribution.
2. **Arithmetic Mean or Average:** The ratio of sum of all observations to the total number of observation is called Arithmetic Mean. It is denoted by ‘’ and given by (for continuous series),

Mean () =

Where, *N =* Total frequency

*m* = mid value for each class

1. **Median:** The middle most value of order set of data is called median. It is denoted by Md and given by (for continuous series),

Md =

Where, L = lower limit of median class

N/2 = Position of median class

f = frequency of median class

c.f. = cumulative frequency of median class

h = class interval of median class

**CALCULATION:**

1. The continuous frequency distribution table for the bonus (Rs.) paid to the workers was constructed using Microsoft Word and Microsoft Excel.

|  |  |  |
| --- | --- | --- |
| Bonus in Rupees | Tally Bar | Frequency |
| 50-60 | ~~||||~~ ~~||||~~ | | 11 |
| 60-70 | ~~||||~~ ~~||||~~ ~~||||~~ | 15 |
| 70-80 | ~~||||~~ ~~||||~~ ~~||||~~ |||| | 19 |
| 80-90 | ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ |||| | 24 |
| 90-100 | ~~||||~~ ~~||||~~ ~~||||~~ || | 17 |
| 100-110 | ~~||||~~ ~~||||~~ || | 12 |
|  | | N=98 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Bonus in Rupees | Frequency | Mid-value(m) | fm | c.f. |
| 50-60 | 11 | 55 | 605 | 11 |
| 60-70 | 15 | 65 | 975 | 26 |
| 70-80 | 19 | 75 | 1425 | 45 |
| 80-90 | 24 | 85 | 2040 | 69 |
| 90-100 | 17 | 95 | 1615 | 86 |
| 100-110 | 12 | 105 | 1260 | 98 |
|  | N=98 |  | 7920 |  |

1. The arithmetic mean and median for the bonus(in Rs) paid to the worker was constructed by using Microsoft word and Microsoft Excel as:

**For Mean:**

N=98

Mean () = = = Rs. 80.816

**For Median:**

Size of Median (Md) =th item

=th item

= 49th item

The c.f. just greater than 49 is 69 who corresponding class is 80-90. So, Median class = 80-90.

Here, L = 80

f = 24

c.f. = 45

h = 10

Now,

Md =

=

= 80 + 1.667

= Rs. 81.667

**RESULT:**

The arithmetic mean and median of the bonus paid to the workers are Rs.80.916 & Rs.81.667 respectively.

**CONCLUSION:**

In this way, the continuous frequency distribution was constructed of the bonus paid to the workers and also its arithmetic mean and median were calculated using the Microsoft word and Microsoft Excel.