Experiment No. 8

Title:- Manual Data Collection, Analysis and Graphical Representation

Specific Outcomes:- Students will able to

1) To analyze and interpret the data obtained from the different measurements processes and present it in the graphical form, statistical form

Procedure:-

1) Select any quality characteristic of workpiece or an object like
   - Weight of packets of food items (noodles packets, biscuits packets, cookies etc.)
   - Weight of marble pebbles, notebooks (of same size & number of pages) etc.
   - Daily data of temperature, humidity, rainfall etc.
2) Image / Figure of an object or workpiece
3) Name of quality characteristic selected with unit of measurement
4) Collect and tabulate categorical data of selected quality characteristic (at least fifty readings)
5) Prepare frequency distribution Table
6) Data Representation in statistical form with inferences
   - Determine central tendency by Calculating average (X bar), median, mode, range (R) and
   - Dispersion (or scattering) standard deviation (S)
7) Data Representation in graphical form with inferences
   - Represent data collected in the graphical form using appropriate tools like frequency bar chart, histogram, Pareto chart etc.
8) Mention References used

Title of Article	Web Link

Experiment no. 8

In the following experiment
We are collecting temperature of two months.

	March Month				April Month			
DAYS	1 TEMP. 36°C	16.	36° C		1.	33°C	16	34°C
	2 35°C	17.	36°C		2.	32 C	17	34°C
	3 37°C	18.	34°C		3.	32 C	18	35°C
	4 38°C	19.	33°C		4.	33°C	19	33 C
	5 37°C	20.	32°C		5.	33°C	20	33°C
	6 33°C	21.	34°C		6.	36°C	21	33°C
	7. 36°C	22.	34°C		7.	35°C	22	35°C
	8 35°C	23.	35°C		8.	33°C	23.	33°C
	9. 34°C	24.	38°C		9.	33°C	24.	33°C
	10 32°C	25.	39°C		10.	34°C	25.	33°C
	11. 33°C	26.	39°C		11.	35°C	26	34°C
	12. 33°C	27.	41°C		12.	35°C	27.	34°C
	13. 38°C	28	35°C		13.	35°C	28	34°C
	14. 35°C	29	35°C		14.	35°C	29	34°
	15. 36°C	30	33°C		15.	35°C	30	31°C
		31	33°C					

We will find the mean, median, range mode of the temp. of two months.

Arranged temperature in Ascending order.

No.	Temp.	No	Temp	No	Temp.
1.	31°C	24.	34°C	47.	35°C
2.	32°C	25.	34°C	48.	35°C
3.	32°C	26.	34°C	49.	36°C
4.	32°C	27.	34°C	50.	36°C
5.	32°C	28.	34°C	51.	36°C
6.	33°C	29.	34°C	52.	36°C
7.	33°C	30.	34°C	53.	36°C
8.	33°C	31.	34°C	54.	37°C
9.	33°C	32.	34°C	55.	37°C
10.	33°C	33.	34°C	56.	38°C
11.	33°C	34.	35°C	57.	38°C
12.	33°C	35.	35°C	58.	38°C
13.	33°C	36.	35°C	59.	39°C
14.	33°C	37.	35°C	60.	39°C
15.	33°C	38	35°C	61	41°C
16.	33°C	39	35°C		
17.	33°C	40	35°C		
18.	33°C	41	35°C		
19.	33°C	42	35°C		
20.	33°C	43	35°C		
21.	33°C	44	35°C		
22.	33°C	45	35°C		
23.	34°C	46	35°C		

The sum of total temperature of 2 months.
$$= 2106\,°C$$

$\therefore$ Mean $= \dfrac{\text{Sum of two month temp.}}{\text{No. of days in that 2 months.}}$

$$= \dfrac{2106\,°C}{61}$$

$$= \underline{34.52\,°C}$$

$\therefore$ Mean of two month temp. is 34.52.

$\therefore$ Median.

    There are 61 temperatures.

$\therefore$ The middle temperature is $\cancel{30}$ 31st.
    It is $\underline{33\,°C}$

$\therefore$ Median $= 33\,°C$

Range

    Higher value $-$ lower value.
$$= 34.52\,° - 33\,°C$$
$$= \underline{0.52}$$

Mode.

Temperature	No. of Temp
31°C	1
32°C	4
33°C	17
34°C	11
35°C	15
36°C	5
37°C	2
38°C	3
39°C	2
41°C	1

In these case 17 times are get 33°C.
Hence,
So mode is equal to 33°C.

$$\therefore \underline{Mode = 33°C}$$

Headquarters location

TEMPERAATURE OF TWO MONTHS WITH THE HELP OF BAR CHART

Data

DAYS	MPERAATURE °C
1	36
2	35
3	37
4	38
5	37
6	33
7	36
8	35
9	34
10	32
11	33
12	33
13	38
14	35
15	35
16	36
17	36
18	34
19	33
20	32
21	34
22	34
23	35
24	38
25	39
26	39
27	41
28	35
29	35
30	33
31	33
32	33
33	32
34	32
35	33
36	33
37	36
38	35
39	33
40	33
41	34
42	35
43	35
44	35
45	35
46	35
47	34
48	34
49	35
50	33
51	33
52	33
53	35
54	33
55	33
56	33
57	34
58	34
59	34
60	34
61	31

TEMPERAATURE OF TWO MONTHS WITH THE HELP OF BAR CHART