Victoria University of Bangladesh
Midterm
Assessment
Summer Semester-2022
Business Statistics-STA 220

Submitted By

Name   : Most. Anny mala

Program Name : B·B·A

ID No   : 1119470011

Course Code   : STA 220

Course title   : Business Statistics

Batch   : 47

Submitted to

Taniya Nashin

Lecturer

B·B·A Department

Answer to the question no-1

Statistics:- Statistics is a branch of applied mathematics that involves the collection, to description, analysis, and inference of the conclusions from quantitative data. The mathematical theories behind Statistics rely heavily on differential and integral of calculus, linear, algebra, and Probability theory.

Answer to the question no-2

Construct a frequency distribution for the data stress on job:-

Somewhat   is   18
None   is   9
very   is   13

Stress on Job	Tally	Frequency
Somewhat	ЖЖ ЖЖ ЖЖ III	18
None	ЖЖ IIII	9
very	ЖЖ ЖЖ III	13
		Sum = 40

calculating Relative frequency of category

Relative frequency of a category,
$$= \frac{Frequency\ of\ a\ category}{Sum\ of\ all\ frequencies}$$

Calculating Percentage,

$$Percentage = (Relative \; frequency) \cdot 100$$

Stress on job	Relative frequency	Percentage
Somewhat	$18/40 = 0.45$	$.45(100) = 45$
None	$9/40 = 0.225$	$.225(100) = 22.5$
very	$13/40 = 0.325$	$.325(100) = 32.5$
	Sum = 1.000	Sum = 100

Answer to the question no— 3

The variable in the 2021 total sales for a company. Let us denote this variable by x. Then the six values of x are

$x_1 = 20$

$x_2 = 33$

$x_3 = 38$

$x_4 = 15$

$x_5 = 42$

$x_6 = 24$

where $x_1 = 20$ represents the 2021 total sales of ACI, $x_2 = 33$ represents the 2021 total sales of square, $x_3 = 38$ represents the 2021 total sales of Ranimafrooz, $x_4 = 15$ represents the 2021 total sales of Beximco, $x_5 = 42$ represents the 2021 total sales of summit, $x_6 = 24$ represents the 2021 total sales of meghna.

The sum of the 2021 sales for these six companies is

$\sum x = x_1 + x_2 + x_3 + x_4 + x_5 + x_6$

$= 20 + 33 + 38 + 15 + 42 + 24$

$= 172$

Note that the given data include only six companies. Hence, they represent a

Sample. Because the given data set contains six companies n=6. Substituting the values of Σn and n in the sample formula, we obtain the mean 2021 sales of the six companies:

$$\bar{n} = \frac{\Sigma n}{n}$$

$$= \frac{172}{6}$$

$$= 28.67 \ Billion$$

Thus, the mean 2021 sales of these six companies was 28.67 or $ 28.67 Billion Tk.

Answer to the question no-4

5, 8, 9, 10, 11, 12, 14, 16, 17, 19, 20, 23, 24, 25, 27, 28, 29, 30, 32, 33

The minimum value is 5 and the maximum value is 33. Suppose we decide to group these data using 6 classes of equal width.

Then,

$$\text{Approximate width of each class} = \frac{33-5}{6}$$
$$= 4.7$$

Now we round this approximate width to a convenient number, say 5. The lower limit of the first class can be taken as 5 or any number less than 5. Suppose we take 5 as the lower limit of the first class. Then our classes will be,

5 — 9

10 — 14

15 — 19

20 — 24

25 — 29

30 — 34

Frequency distribution for the data on laptop sold,

LaptopSold	Tally	f
5 – 9	III	3
10 – 14	IIII	4
15 – 19	III	3
20 – 24	III	3
25 – 29	IIII	4
30 – 34	III	3
		$\Sigma f = 20$

Relative Frequency and Percentage distributions
Calculating relative frequency and Percentage
Relative frequency of a class,

$$= \frac{\text{Frequency of that class}}{\text{Sum of all frequencies}}$$

$$= \frac{f}{\Sigma f}$$

Percentage $= (\text{relative frequency}) \cdot 100$

Laptop Sold	Class Boundaries	Relative f.	Percentage
5 – 9	4.5 to less than 9.5	3/20 = 0.15	15
10 – 14	9.5 to less than 14.5	4/20 = 0.2	20
15 – 19	14.5 to less than 19.5	3/20 = 0.15	15
20 – 24	19.5 to less than 24.5	3/20 = 0.15	15
25 – 29	24.5 to less than 29.5	4/20 = 0.2	20
30 – 34	29.5 to less than 34.5	3/20 = 0.15	15
	Sum	= 1.00	sum = 100

Answer to the question no - 5

Median :-

First we rank the given income of 10 People as follows :-

50,000, 60,000, 60,000, 67,000, 70,000, 75,000, 80,000

81,000, 82,000, 90,000

There are 10 People in this data set. Because there is an even number of People in the data set, the median is given by the average of the two middle values. The two middle values are the five and six in the foregoing list of data, and these two values are 70,000 and 75,000. The median which is given by the average of these two values, is calculated as follows,

50,000, 60,000, 60,000, 67,000, 70,000, 75,000, 80,000,

81,000, 82,000, 90,000   ↓

                                                median

$$Median = \frac{70,000 + 75,000}{2}$$

$$= \frac{145,000}{2}$$

$$= 72,500$$

$$= \$72,500 \text{ billion}$$

Thus, the median income of 10 People living Jatrabari is $72,500 billion.

Mode :-

50,000, 60,000, 60,000, 67,000, 70,000, 75,000, 80,000

81,000, 82,000, 90,000

In this data set, 60,000 occurs twice, and each of the remaining values occurs only once. Because 60,000 occurs with the highest frequency, it is the mode. Therefore,

Mode = 60,000 TK.