Assignment 2

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Answer to the Question no. 1

The below table shows the number of hours slept in a study on 45 individuals.

Class Interval	Frequency	Relative Frequency	Cumulative Frequency (less than type)	Cumulative Rlt. Frequency (less than type)
3-5	12	26.67	12	26.67
5-7	18	40.00	30	66.67
7-9	9	20.00	39	86.67
9-11	6	13.33	45	100

Comment: the class between 5 to 7 has 40% relative Frequency.

Answer to the Question no. 2

a. Number of welders get hourly wage of 6 to 10
$= 13+8 = 21.$

b. Number of welders get hourly wage of less than
$\$6 = 15+27+20 = 62.$

c. Number of welders get hourly wage of more tha $8 = 8+5+2 = 15

d. Number of welders are studied in this survey = 15+27+20+13+8+5+2 = 90

e. Percentage of welders get hourly wage of $4 to $8 = $\frac{20+13}{90} \times 100 = 36.67\%$

Answer to the Question no. 3

a. The mean hotel room rate, $\bar{x} = \frac{\Sigma x}{n}$

$= \frac{3181}{20} = 159.05.$

b. Hotel Room Rate in Ascending order —

120, 123, 125, 126, 134, 139, 144, 145, 146, 160, 162, 163, 167, 167, 173, 177, 192, 207, 245.

$\text{Median} = \frac{\left(\frac{n}{2}\text{th} + \left(\frac{n}{2}+1\right)\text{th}\right) \text{Data}}{2}$

$= \frac{(10\text{th} + 11\text{th}) \text{ Data}}{2}$

$= \frac{160+162}{2} = 161$

The estimated median hotel room rate is 161.

c. The number 167 is the mode because it appears more in the set than the other hotel room rate.

d. The first Quartile $= \left(\frac{(20+1)\times 25}{100}\right)$-th value

$= 5.25$ th value

$= 134 + (0.25) \times (139 - 134)$

$= 135.25$

1st One fourth rates are less than 135.25.

e. The third Quartile $= \left(\frac{(20+1)\times 75}{100}\right)$-th value

$= 15.75$ th value

$= 167 + (0.75) \times (173 - 167)$

$= 171.5$

The rate of 75% hotel room is less than 171.5 $.

Answer to the Question no. 4

Total person = 200

50 nurses aides recieve = $8 an hour.

50 practical nurses aides recieve = $15 an hour.

100 Registered nurses aides recieve = $24 an hour

∴ Weighted mean hourly wage = $\frac{(50 \times \$8) + (50 \times \$15) + (100 \times \$24)}{200}$

$= \frac{3550}{200}$

= 17.75 per hour.

(Ans)

Answer to the Question no. 5

Acumuted Valve:

109.4, 113.8, 111.7, 111.9, 114.7, 112.28

Geometric mean = $(\pi x)^{\frac{1}{N}}$

$= (109.4 \times 113.8 \times 111.7 \times 111.9 \times 114.7 \times 112.28)^{\frac{1}{5}}$

= 112.28

Geometric mean percent increase in sales over the period = 12.28 %

(Ans)

Answer to the Question no. 6

$$\text{Geometric mean} = \left(\frac{752,000,000}{720,000}\right)^{\frac{1}{15}} - 1$$

$$= 1.59 - 1$$

$$= 0.59$$

$$= 59\%$$

the GM annual increase 59% for the period.

Answer to the Question no. 7

The number of days in Ascending Order –

6, 8, 10, 11, 13, 15, 15, 16, 17, 19, 22, 49

a. (i) Arithmetic Mean $= \frac{\Sigma x}{n} = \frac{201}{12}$

$$= 16.75.$$

(ii) Median $= \frac{6\text{th} + 7\text{th Data}}{2}$

$$= \frac{15+15}{2}$$

$$= 15$$

(iii) Here 15 is most frequent Data.

$\therefore$ Mode = 15.

b. Among the measure above mode is best. Because here 40 is extreme value and we know arithmetic mean affected by extreme value and we cannot use it in nominal and ordinal. For median we cannot use it in nominal. But mode is used in every scale of measurement. So, mode is best for this data.

Answer to the Question no. 8

a. 40 welders were studied.

b. The class interval is Relative Frequency.

c. 10 welders earn less than $10.00 per hour.

d. About 75% of the welders make less than (5+10+15+20) = $50.

e. Ten of the welders studied made less than (5+10) = $15.