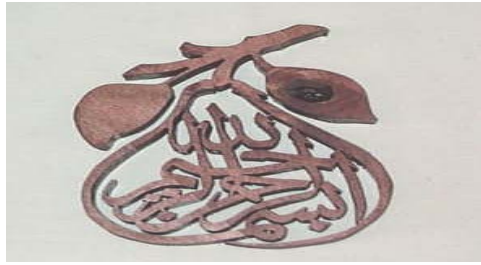


SOLVED PROBLEMS – STAT 145

Part A: From Question No. 1 up to Question No. 38

Dr. M. Kayid



Questions 1

A characteristic of the population to be measured is

Sol: Variable

Questions 2

The number of student taking STAT 145 course in this term is

Sol: Discrete Variable

Questions 3

The part of the population on which we collect the data is

Sol: Sample

Questions 4

The weight, age and family size is

Sol: Quantative Variables

Questions 5

The blood type, educational level and nationality is

Sol: Qualitive Variables

Questions 6

The mean age of every one living in Canada is

Sol: Parameter

Questions 7

The variance of the birth weights of all babies born in Riyadh is

Sol: parameter

SOLVED PROBLEMS – STAT 145

Part A: From Question No. 1 up to Question No. 38

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Questions 8

The medain of glucose level for a sample of diabetic patients is

Sol: Statistic

Questions 9

The central tendency measures which is more affected by extreme valuse is

Sol: Mean

Questions 10

The variance of values 9, 9, 9, 9, 9, 9, 9 equal

Sol: Zero

Questions 11

The population mean μ is a

Sol: parameter

Questions 12

The sample mean \bar{x} is a

Sol: Statistic

Questions 13

The sum of deviation of the values from their means equal

Sol: Zero

Questions 14

Let x_1, x_2, \dots, x_n be a sample values and let \bar{x} is the sample mean, then $\sum_{i=1}^n (x_i - \bar{x}) = \dots\dots$

Sol: Zero

Questions 15

The range of the sample values: 36, 12, 8, 40, 5 equal

Sol: Range=40-5=35

Questions 16

Let X_1, X_2, \dots, X_N be the population values. The population variance σ^2 is defined by

Sol: $\sigma^2 = \frac{\sum_{i=1}^N (x_i - \mu)^2}{N}$, where μ is the population mean

Questions 17

Let x_1, x_2, \dots, x_n be a sample values. The sample variance S^2 is defined by

Sol: $S^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}$, where \bar{x} is the sample mean

Questions 18

The standard deviation is a measure of

Sol: variation *or* dispersion

Use the following information for questions 19 – 21

➔ Suppose that we have the following data: 4, 5, 3, 4, 10, 12, 20, 2

Questions 19

The sample mean equal

Sol: 7.5

Questions 20

The median equal

Sol: 4.5

Questions 21

The mode equal

Sol: 4

Use the following information for questions 1 22 – 28

→ Suppose that the sample values are: 21, 10, 54, 33, 53

Questions 22

The sample variance equal

Sol: $S^2=376.5$

Questions 23

The standard deviation equal

Sol: $S = \sqrt{S^2} = \sqrt{376.5} = 19.41$

Questions 24

The range equal

Sol: Range= 54-10=44

Questions 25

The sample median equal

Sol: $\bar{x} = \frac{\sum_{i=1}^n x_i}{n} = \frac{21+10+54+33+53}{5} = 34.2$

Questions 26

The mode is

Sol: No mode

Questions 27

The median is

Sol: 33

Questions 28

SOLVED PROBLEMS – STAT 145

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The coefficient of variation (C.V.) equal

$$\text{Sol: } C.V. = \frac{S}{\bar{x}} * 100\% = \frac{19.41}{34.2} * 100\% = 56.75\%$$

Questions 29

From a data set we have $\bar{x} = 66 \text{ kg}$ and $C.V. = 6.8\%$ then the standard deviation equal

$$\text{Sol: } C.V. = \frac{S}{\bar{x}} \Rightarrow S = C.V. * \bar{x} = 0.068 * 66 = 4.5$$

Questions 30

The sum of all relative frequencies in frequency distribution equal

Sol: One

Questions 31

If the coefficient of variation ($C.V._1$) of the 1st data set equal 6.8% and the coefficient of variation ($C.V._2$) of the 2nd data set equal 12.5%, then the relative variability in the 2nd data set is than the relative variability in 1st data set.

Sol: larger

Use the following information for questions 32 – 35

→ Suppose that the sample values are x_1, x_2, \dots, x_n have the mean \bar{x} and variance S^2 .

Questions 32

The mean of $x_1+2, x_2+2, \dots, x_n+2$ is

Sol: $\bar{x} + 2$

Questions 33

The variance of $x_1+2, x_2+2, \dots, x_n+2$ is

Sol: S^2

Questions 34

SOLVED PROBLEMS – STAT 145

Part A: From Question No. 1 up to Question No. 38

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The mean of $5x_1-3, 5x_2-3, \dots, 5x_n-3$ is

Sol: $5\bar{x} - 3$

Questions 35

The variance of $5x_1-3, 5x_2-3, \dots, 5x_n-3$ is

Sol: $25 S^2$

Use the following information for questions 36 – 38

→ the weights (in kg) of 8 student gives the following results:

$$\sum_{i=1}^8 x_i = 495 \quad \text{and} \quad \sum_{i=1}^8 x_i^2 = 30659$$

Questions 36

The mean of the weights of the students equal

Sol: 61.875

Questions 37

The variance of the weights of the students equal

Sol: 4.4107

Questions 38

The coefficient of variation (C.V.) of the weights of the students equal

Sol: 3.39%

With My Best Regards

Dr. M. Kayid

SOLVED PROBLEMS – STAT 145

Part A: From Question No. 1 up to Question No. 38

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