

BMAT 160

TEST #1 – FORMULA SHEET

CHAPTER- 2: Statistics of One Variable

$$\text{Sampling Interval} = \frac{\text{Population Size}}{\text{Sample Size}}$$

Median: the middle value when the data are arranged from lowest to highest

$$\text{Sample Mean, } \bar{x}: \quad \bar{x} = \frac{\sum x}{n}, \quad \text{where, } n = \text{the number of values in a sample}$$

Mode: the most frequent data

$$\text{Weighted Mean:} \quad \bar{x} = \frac{\sum wx}{\sum w}, \quad \text{where, } w = \text{the weight of the data point } x$$

$$\text{Sample Variance, } v: \quad v = \frac{\sum(x-\bar{x})^2}{n-1}$$

$$\text{Sample Standard deviation, } s: \quad s = \sqrt{v} = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

First quartile (Q₁): the median of the lower half of the data

Third quartile (Q₃): the median of the upper half of the data

$$\text{Interquartile range} = Q_3 - Q_1$$

$$\text{Semi – interquartile range} = \frac{1}{2} (Q_3 - Q_1)$$

CHAPTER- 3: Scatter Plots and Linear Correlation

$$\text{Correlation Coefficient, } r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

$$\text{Equation of the line of best fit:} \quad y = ax + b,$$

$$\text{where } a = \frac{n \sum xy - (\sum x)(\sum y)}{n \sum x^2 - (\sum x)^2}, \quad b = \bar{y} - a\bar{x}$$