Statistics - Worksheet 3

① (b) Total Variation = Residual Variation + Regression Variation

② (c) binomial

③ (a) 2

④ (a) Type - I error

⑤ (b) Size of the test

⑥ b) increase

⑦ b) Hypothesis

⑧ d) All of the mentioned

⑨ a) 0

10) Baye's Theorem

- Baye's Theorem is a mathematical formula for determining conditional probability. Conditional probability is the likelihood of an outcome occurring based on a previous outcome.

- Formula :

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{P(A) \cdot P(B|A)}{P(B)}$$

Where :

$P(A)$ = Probability of A occurring
$P(B)$ = Probability of B occurring
$P(A|B)$ = Probability of A given B
$P(B|A)$ = Probability of B given A
$P(A \cap B)$ = Probability of A & B both occurring

11) Z-Score

- A z-score describes the position of a raw score in terms of its distance from the mean, when measured in standard deviation units

- The z-score is positive when value lies above the mean and negative if it lies below the mean

- Formula:

$$z = \frac{x - u}{6}$$

Where

x = score

u = mean

6 = SD

12) **T-Test**

- A t-test is a type of inferential statistic used to determine if there is a significance difference between the mean of 2 groups which may be related in certain features.

- A t-test is one of many tests used of the purpose of hypothesis testing.

- Formula

$$t = \frac{m - u}{s/\sqrt{n}}$$
where: m = mean, s = SD
u = theoretical value
n = variable set size

(13) Percentile

- A percentile is a term used in statistics to express how a score compares to other scores in the same set.

- It is percentage of values that fall below a particular value in a set of data so scores.

(14) ANOVA

- Analysis of variance (ANOVA) is a stastical technique that is used to check if the means of two or more groups are significantly different from each other.

- ANOVA checks the impact of one or more factors by comparing the mean of different samples.

(15) How can Anova Help

- The one way ANOVA can help you know whether or not there are significant

differences between the means of your independent variables

* When you understand how each independent variable's mean is different from the others, you can begin to understand which of them has a connection to your dependent variable and begin to learn what is driving that behaviour