STATISTICS WORKSHEET-8

Q1 to Q12 have only one correct answer. Choose the correct option to answer your question.

1. In hypothesis testing, type II error is represented by β and the power of the test is 1−β then β is:

c. The probability of failing to reject H1 when H0 is true

2. **In hypothesis testing, the hypothesis which is tentatively assumed to be true is called the**

b. null hypothesis

3. When the null hypothesis has been true, but the sample information has resulted in the rejection of the null, a _____ has been made

d. Type I error

4.For finding the p-value when the population standard deviation is unknown, if it is reasonable to assume that the population is normal, we use

a. the z distribution

b. the t distribution with n - 1 degrees of freedom

c. the t distribution with n + 1 degrees of freedom

5. A Type II error is the error of

c. rejecting Ho when it is false

6. A hypothesis test in which rejection of the null hypothesis occurs for values of the point estimator in either tail of the sampling distribution is called

d. a two-tailed test

7. In hypothesis testing, the level of significance is

b. the probability of committing a Type I error

8. In hypothesis testing, b is a. the probability of committing

a. the probability of committing a Type II error

9. When testing the following hypotheses at an α level of significance H0: p = 0.7 H1: p > 0.7 The null hypothesis will be rejected if the test statistic Z is

a. $z > z\alpha$

10. Which of the following does not need to be known in order to compute the P-value?

c. the level of significance

11. The maximum probability of a Type I error that the decision maker will tolerate is called the

a. level of significance

12. For t distribution, increasing the sample size, the effect will be on

c. Standard Error of the Means

Q13 to Q15 are subjective answers type questions. Answers them in their own words briefly.

13. What is Anova in SPSS?

Analysis of Variance, i.e. ANOVA in SPSS, is used for examining the differences in the mean values of the dependent variable associated with the effect of the controlled independent variables, after taking into account the influence of the uncontrolled independent variables.

The ANOVA test **allows a comparison of more than two groups at the same time to determine whether a relationship exists between them**.

ANOVA **tells you if the dependent variable changes according to the level of the independent variable**

14. What are the assumptions of Anova?

There are three primary assumptions in ANOVA: The responses for each factor level have a normal population distribution. These distributions have the same variance. The data are independent.

ANOVA Assumptions

1. The experimental errors of your data are normally distributed

2. Equal variances between treatments Homogeneity of variances Homoscedasticity

3. Independence of samples Each sample is randomly selected and independent

15. What is the difference between one way Anova and two way Anova?

In a one-way ANOVA, it focuses on simply one independent variable and one dependent variable. However, variables rarely exist in isolation in the real world. The two way ANOVA focuses on two independent variables to examine these more complex, real-life situations, thus increasing the external validity of the study

One way ANOVA has one independent variable and Two way ANOVA has two independent variables.

One Way ANOVA:

- One way ANOVA is a hypothesis test, used to test the equality of three of more population means simultaneously using variance.
- One Independent Variable
- Three or more levels of one factor.
- Need not to be same in each group.
- Need to satisfy only two principles.

Two way ANOVA:

- Two way ANOVA is a statistical technique wherein, the interaction between factors, influencing variable can be studied.
- Two Independent Variable
- Effect of multiple level of two factors.
- Need to be equal in each group.
- All three principles needs to be satisfied.