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**INTERSHIP=34**

**WORKSHEET=1(STATISTICS)**

**STATISTICS WORKSHEET-1**

**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:

a. The probability of rejecting H0 when H1 is true

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

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

d. The probability of rejecting H0 when H1 is true

ANSWER:-b. The probability of failing to reject H0 when H1 is true

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

a. correct hypothesis

b. null hypothesis

c. alternative hypothesis

d. level of significance

ANSWER:- 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

a. level of significance

b. Type II error

c. critical value

d. Type I error

ANSWER:- d. Type I error

1. 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

d. none of the above

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

5. A Type II error is the error of

a. accepting Ho when it is false

b. accepting Ho when it is true

c. rejecting Ho when it is false

d. rejecting Ho when it is true

ANSWER:- a. accepting 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

a. the null hypothesis

b. the alternative hypothesis

c. a one-tailed test

d. a two-tailed test

ANSWER:- d. a two-tailed test

7. In hypothesis testing, the level of significance is

a. the probability of committing a Type II error

b. the probability of committing a Type I error

c. the probability of either a Type I or Type II, depending on the hypothesis to be tested

d. none of the above

ANSWER:- b. the probability of committing a Type I error

8. In hypothesis testing, b is

a. the probability of committing a Type II error

b. the probability of committing a Type I error

c. the probability of either a Type I or Type II, depending on the hypothesis to be test

d. none of the above

ANSWER:- 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 > zα

b. z < zα

c. z < -z

d. none of the above

ANSWER:- a. z > zα

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

a. knowledge of whether the test is one-tailed or two-tail

b. the value of the test statistic

c. the level of significance

d. All of the above are needed

ANSWER:- a. knowledge of whether the test is one-tailed or two-tail

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

a. level of significance

b. critical value

c. decision value

d. probability value

ANSWER:- a. level of significance

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

a. Degrees of Freedom

b. The t-ratio

c. Standard Error of the Means

d. All of the Above

ANSWER:- a. Degrees of Freedom

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

1. What is Anova in SPSS?

ANSWER:-ANOVA (Analysis of Variance) is a statistical method used to test for significant differences between the means of two or more groups. In SPSS, ANOVA can be performed using the Analyze menu. Specifically, one-way ANOVA can be used to test for differences between groups when there is one independent variable, while factorial ANOVA can be used to test for differences when there are multiple independent variables. ANOVA results can provide information about the F-value, which is the ratio of the variance between groups to the variance within groups, and the associated p-value, which indicates the statistical significance of the results. ANOVA can be useful in a variety of fields, such as psychology, medicine, and business, to analyze the effects of different treatments or interventions on groups of participants.

1. What are the assumptions of Anova?

ANSWER:- The assumptions of ANOVA (Analysis of Variance) are as follows:

1. Normality: The dependent variable should be normally distributed in each group or level of the independent variable.
2. Homogeneity of Variance: The variance of the dependent variable should be the same across all levels of the independent variable. This assumption is also called homoscedasticity.
3. Independence: The observations should be independent of each other. This means that the value of one observation should not be influenced by the value of any other observation.
4. Random Sampling: The data should be obtained through a random sampling process.

If these assumptions are not met, the results of the ANOVA test may not be valid.

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

ANSWER:-The main difference between one-way ANOVA and two-way ANOVA is the number of independent variables or factors being considered in the analysis.

In one-way ANOVA, there is only one independent variable or factor, and it has three or more levels or groups. The purpose of one-way ANOVA is to determine whether there is a significant difference between the means of the groups.

In contrast, two-way ANOVA involves two independent variables or factors, each with two or more levels or groups. The purpose of two-way ANOVA is to determine whether there is a significant interaction between the two independent variables and whether each independent variable has a significant main effect on the dependent variable.

In other words, one-way ANOVA examines differences between groups defined by a single factor, while two-way ANOVA examines differences between groups defined by two factors and their interaction.