**STATISTICS WORKSHEET-8**

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

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

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

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

**ANS. B) null hypothesis.**

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

**ANS. D) Type I error.**

Q. 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

**ANS. B) the t distribution with n - 1 degrees of freedom**

Q. 5. A Type II error is the error of

**ANS. rejecting Ho when it is false**

Q. 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

**ANS. .D) a two-tailed test**

Q. 7. In hypothesis testing, the level of significance is

**ANS. B) the probability of committing a Type I error**

Q. 8. In hypothesis testing, b is

**ANS. A) the probability of committing a Type II error**

Q. 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

**ANS. A) z > zα**

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

**ANS.NO.10)C) the level of significance**

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

**ANS. A) the level of significance**

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

**ANS. D) d. All of the Above**

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

Q. 13. What is Anova in SPSS?

ANS. 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. Essentially, ANOVA in SPSS is used as the test of means for two or more populations.

ANOVA in SPSS must have a dependent variable which should be metric (measured using an interval or ratio scale). ANOVA in SPSS must also have one or more independent variables, which should be categorical in nature. In ANOVA in SPSS, categorical independent variables are called factors. A particular combination of factor levels, or categories, is called a treatment.

“Analyze” then go to “Compare Means” and click on the “One-Way ANOVA.”

A major advantage of ANOVA in SPSS is that the interactions between the independent variables can be examined.

Q.14. What are the assumptions of Anova?

ANS. 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.
* Each group sample is drawn from a normally distributed population
* All populations have a common variance

All samples are drawn independently of each other

Within each sample, the observations are sampled randomly and independently of each other

Factor effects are additive

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

ANS. The only difference between one-way and two-way ANOVA is the number of[independent variables](https://www.scribbr.com/methodology/types-of-variables/). A one-way ANOVA has one independent variable, while a two-way ANOVA has two.

[One-way ANOVA](https://www.scribbr.com/statistics/one-way-anova/): Testing the relationship between shoe brand (Nike, Adidas, Saucony, Hoka) and race finish times in a marathon.

[Two-way ANOVA](https://www.scribbr.com/statistics/two-way-anova/): Testing the relationship between shoe brand (Nike, Adidas, Saucony, Hoka), runner age group (junior, senior, master’s), and race finishing times in a marathon.

All ANOVAs are designed to test for differences among three or more groups. If you are only testing for a difference between two groups, use a [t-test](https://www.scribbr.com/statistics/t-test/) instead.