

1. B
2. B
3. D
4. B
5. D
6. D
7. B
8. A
9. A
10. C
11. A
12. D

### **13<sup>th</sup>**

ANOVA (Analysis of Variance) in SPSS is a statistical test used to compare the means of two or more groups of continuous data. It determines whether there is a significant difference between the means of the groups or if any observed differences can be attributed to chance. ANOVA can be used to test for differences between means in various experimental designs, such as between-subjects or within-subjects designs, as well as in randomized block designs. SPSS provides a user-friendly interface for conducting ANOVA analyses, and it also generates output tables that summarize the results of the analysis, including F-values, p-values, and effect sizes.

### **14<sup>th</sup>**

ANOVA (Analysis of Variance) has several assumptions that must be met to ensure that the test results are reliable and accurate. These assumptions include:

- a. Independence: The observations within each group should be independent of each other.
- b. Normality: The data should be normally distributed within each group.
- c. Homogeneity of Variance: The variance of the data should be approximately equal across all groups.
- d. Interval or Ratio Scales: The dependent variable should be measured on an interval or ratio scale.

If these assumptions are not met, the ANOVA results may not be accurate, and alternative statistical tests may be required. For example, if the assumption of normality is violated, a non-parametric test, such as the Kruskal-Wallis test, may be more appropriate. It is important to check these assumptions before conducting ANOVA and address any violations appropriately.

## 15<sup>th</sup>

One-way ANOVA and two-way ANOVA are two types of analysis of variance used in statistical analysis. The key differences between them are as follows:

- A. Number of Independent Variables: One-way ANOVA involves only one independent variable, while two-way ANOVA involves two independent variables.
- B. Factorial Design: Two-way ANOVA is a type of factorial design that enables the simultaneous examination of two independent variables and their interactions, while one-way ANOVA is not a factorial design.
- C. Main Effects: In two-way ANOVA, there are two main effects, which represent the effects of each independent variable on the dependent variable. In one-way ANOVA, there is only one main effect.
- D. Interaction Effect: Two-way ANOVA also allows for the examination of the interaction effect, which refers to the effect of one independent variable on the dependent variable, depending on the level of the other independent variable. One-way ANOVA does not examine interaction effects.

In summary, the main difference between one-way ANOVA and two-way ANOVA is that two-way ANOVA involves two independent variables and examines their interaction effect, while one-way ANOVA involves only one independent variable and does not examine interaction effects.