# Guideline Quizzes for Module 6

## Question 1                                                                 ( 1 point )

In the context of linear regression, what does the term "residual" refer to?

**Choose at least one correct answer**

(A)   The slope of the regression line.

| (B)   The difference between the actual value of the response variable and its predicted value. | Correct answer |

(C)   The intercept of the regression line.

(D)   The correlation between the explanatory and response variables.

## Question 2                                                                 ( 1 point )

Which of the following is NOT an assumption of the simple linear regression model?

**Choose at least one correct answer**

(A)   Linearity

(B)   Constant variance of errors

(C)   Normality of errors

| (D)   Multicollinearity | Correct answer |

## Question 3                                                                 ( 1 point )

What does the term "collinearity" refer to in multiple regression?

**Choose at least one correct answer**

(A)   A perfect linear relationship between the response variable and an explanatory variable.

| (B)   A perfect linear relationship between two or more explanatory variables. | Correct answer |

(C) The presence of outliers in the data.

(D) The absence of a relationship between the explanatory and response variables.

## Question 4

1 point

In the context of Analysis of Variance (ANOVA), what does the term "factor" mean?

**Choose at least one correct answer**

(A) A quantitative explanatory variable.

(B) The response variable.

(C) A categorical explanatory variable.                                      Correct answer

(D) The error term

## Question 5

1 point

Which of the following metrics represents the proportion of variation in the response variable explained by the regression model?

**Choose at least one correct answer**

(A) Standard error of the regression

(B) R-squared                                                                Correct answer

(C) F-statistic

(D) t-statistic

## Question 6

1 point

In multiple regression, the slope coefficients represent the marginal relationship between each explanatory variable and the response variable.

(A) True

(B) False                                                                    Correct answer

# Question 7

The presence of empty cells in an ANOVA design always prevents any analysis from being conducted.

(A) True

(B) False                                                                          Correct answer

# Question 8

The Gauss-Markov theorem states that under certain conditions, the least-squares estimators are

**Choose at least one correct answer**

(A) Biased but consistent

(B) The most efficient unbiased estimators                                          Correct answer

(C) Unbiased but not efficient

(D) Biased and inconsistent

# Question 9

The variance inflation factor (VIF) in multiple regression indicates

**Choose at least one correct answer**

(A) The presence of outliers

(B) The degree to which an explanatory variable is correlated with other
explanatory variables                                                              Correct answer

(C) The overall significance of the model

(D) The normality of the residuals

# Question 10

Standardized regression coefficients allow for direct comparison of the effects of explanatory variables measured on different scales.

(A) True                                                                           Correct answer

(B) False