

## Single Option Correct Questions

1. What is/are the way(s) in which you can NOT determine the coefficients of a linear regression model?
  - a. Ordinary Least Squares Estimation
  - b. Solving Normal Equations
  - c. Maximum Likelihood Estimation
  - d. **None of the above**
2. When does the OLS estimate of parameters become equal to the ML estimate of parameters?
  - a. **When the errors are normally distributed**
  - b. When the response variable is normally distributed
  - c. When the predictor variables are normally distributed
  - d. They can never be equal
3. In a linear regression, what is the quantity that you want to **maximize** in order to estimate the optimal parameters?
  - a. **Likelihood of parameters given observation**
  - b. Root Mean Squared Error between predicted and actuals
  - c. Mean Squared Error between predicted and actuals
  - d. Mean Absolute Error between predicted and actuals
4. In context of linear regression, what is a parameter?
  - a. **Coefficients of variables**
  - b. Number of variables in the model
  - c. The p value corresponding to each variable in the model
  - d. The number of unused variables in the model
5. The parameters of a linear regression model follow which distribution?
  - a. Normal
  - b. Poisson
  - c. **Student – t**
  - d. Chi – square
6. Why do you need to scale your features in a linear regression model?
  - a. You do not need to scale your features
  - b. **Scaling prevents one feature from unduly influencing the learning algorithm**
  - c. Scaling helps all coefficients have the same order of magnitude
  - d. Scaling helps in feature selection as it makes some coefficients equal to zero.
7. What characteristic of residuals do you NOT check after fitting a linear regression model?
  - a. **Presence of outliers**
  - b. Prescence of heteroskedasticity
  - c. Prescence of trend and seasonality

- d. Presence of autocorrelation
8. Which of the following things about the R-squared of a model NOT hold true?
- a. It represents the percentage variance that is explained by the model
  - b. It represents 1 minus the percentage variance that is contained by the errors
  - c. An R-squared value close to 1 means a better model compared to an R-squared value close to 0
  - d. **R-squared value can never be zero, since it is a squared quantity**
9. What is the utility of adjusted R-squared value of a model?
- a. It adjusts the value of R-squared of the model for minimum bias
  - b. It adjusts the value of R-squared of the model for minimum variance
  - c. **It penalizes the R-squared value with the number of parameters**
  - d. It penalizes the R-squared value with the magnitude of parameter coefficients
10. What does AIC and BIC stand for?
- a. Akaike Information Criteria and Binomial Information Criteria
  - b. Anderson Information Criteria and Binomial Information Criteria
  - c. **Akaike Information Criteria and Bayesian Information Criteria**
  - d. Anderson Information Criteria and Binomial Information Criteria
11. What is the log odds of an event with an associated probability of 0.2?
- a.  **$-2\ln(2)$**
  - b.  $-\ln(2)$
  - c.  $\ln(2)$
  - d.  $2\ln(2)$