QUIZ

1. What is a key characteristic of time series data?
A. It consists of observations collected at irregular time intervals.
B. It does not involve any time-related patterns.
C. It is static and unchanging.
D. It primarily focuses on cross-sectional data.

Correct Answer: A

2. Which of the following components is NOT typically considered in a time series decomposition?
A. Seasonal Component
B. Trend Component
C. Random Noise Component
D. Cyclical Component

Correct Answer: D

3. In time series forecasting, what does the AutoRegressive (AR) model primarily capture?
A. Seasonal patterns
B. Long-term trends
C. Short-term dependencies
D. White noise

Correct Answer: C

4. Which statistical test is commonly used to check for stationarity in time series data?
A. T-test
B. ANOVA
C. Augmented Dickey-Fuller (ADF) test
D. Chi-squared test

Correct Answer: C

5. When using exponential smoothing for time series forecasting, which smoothing parameter gives the most weight to recent observations?
A. Alpha
B. Beta
C. Gamma
D. Delta

Correct Answer: A

6. What is the primary advantage of using LSTM networks over traditional RNNs for sequence modeling?
A. LSTM networks can handle variable-length sequences.
B. LSTM networks are faster to train.
C. LSTM networks have more hidden layers.
D. LSTM networks require fewer training examples.

Correct Answer: A

7. In an LSTM cell, what is the purpose of the forget gate?
A. It controls the input to the cell state.
B. It updates the cell state with new information.
C. It outputs the final prediction.
D. It determines which information to discard from the cell state.

Correct Answer: D

8. In logistic regression, what is the primary purpose of the logistic function (also known as the sigmoid function)?
A. To calculate the odds ratio of the predictor variables.
 B. To convert the dependent variable into a binary outcome.
C. To compute the regression coefficients.
D. To measure the correlation between predictor variables.

Correct Answer: B

9. What is a key advantage of using a Random Forest algorithm for classification or regression tasks compared to a single decision tree?
A. Random Forest is less prone to overfitting.
B. Random Forest is faster to train.
C. Random Forest can handle only binary classification tasks.
D. Random Forest always provides the same result for the same dataset.

Correct Answer: A

10. Suppose you are tasked with predicting the future stock price of a company using historical data. Which of the following machine learning approaches would be most appropriate for this task, considering the sequential nature of stock price data?
A. Logistic Regression
B. Linear Regression
C. Time Series Analysis
D. K-Means Clustering

Correct Answer: C