Code: **21P03601** **SR21** **SET-2**

# SRINIVASA INSTITUTE OF ENGINEERING AND TECHNOLOGY

UGC – Autonomous Institution

**III B.Tech II Semester II MID Examinations, MAY – 2025**

## ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

## MECH

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|---|---|---|---|---|
| Time: **20 Mins** | Max. Marks:**20** | | | Date: **01-05.2025** |
| Roll No: | Sign of the Student: | | | Marks Obtained: |
| Name: | Sign of invigilator: | | | Sign of Valuator: |
| CO | CO 1 | CO 2 | | Marks Obtained: |
| UNIT | III | IV | | Total Marks |

**1. What is the main disadvantage of KNN?** **[ ]**

A) High training time
B) High computation during inference
C) Poor accuracy
D) Requires large amounts of labeled data

**2. In which industry is Naïve Bayes frequently used?** **[ ]**

A) Medical diagnosis
B) Spam filtering
C) Self-driving cars
D) Image processing

**3. The key difference between supervised and unsupervised learning is:** **[ ]**

A) Supervised learning does not require labels
B) Unsupervised learning uses labeled data
C) Supervised learning requires labeled data
D) Unsupervised learning uses target variables

**4. Which of the following is an example of unsupervised learning?** **[ ]**

A) Decision Trees
B) K-Means Clustering
C) Naïve Bayes
D) Logistic Regression

**5. What is an advantage of the Naïve Bayes classifier?** [ ]

A) Handles missing data well
B) Works well with small datasets
C) Provides 100% accuracy
D) Requires deep neural networks

**6. Which step is NOT involved in Bayes' Theorem computation?** [ ]

A) Calculating the prior probability
B) Calculating the likelihood
C) Calculating the gradient descent
D) Calculating the posterior probability

**7. Why is Naïve Bayes called "naïve"?** [ ]

A) It does not learn from training data
B) It assumes feature independence
C) It uses deep learning
D) It only works for small datasets

**8. What is a key characteristic of Instance-Based Learning?** [ ]

A) It requires explicit rule-based training
B) It memorizes training examples for making predictions
C) It is used only for regression problems
D) It requires a pre-trained neural network

**9. What is a real-world application of KNN?** [ ]

A) Face recognition
B) Fraud detection
C) Stock market prediction
D) Game playing

**10. Which of the following is NOT an application of Machine Learning?** [ ]

A) Speech recognition
B) Image classification
C) Cooking food
D) Spam email detection

**11. What is the primary purpose of evaluating machine learning algorithms?** [ ]

A) To increase the number of features in the model
B) To compare different models and select the best one
C) To reduce the amount of training data
D) To convert data into numerical form

**12. Which metric is commonly used for evaluating classification models? [ ]**

A) Mean Squared Error (MSE)
B) Accuracy
C) R-squared
D) Adjusted R-squared

**13. Which of the following is NOT a method for model selection? [ ]**

A) Cross-validation
B) Hyperparameter tuning
C) Overfitting
D) Grid search

**14. What is cross-validation used for in machine learning? [ ]**

A) To test different machine learning models on different datasets
B) To split the dataset into multiple parts for more reliable model evaluation
C) To create new features from existing data
D) To apply deep learning techniques

**15. Which of the following statements about ensemble learning is true? [ ]**

A) It combines multiple weak models to create a strong model
B) It always uses decision trees
C) It works only for supervised learning
D) It cannot be used for deep learning

**16. What is the key difference between bagging and boosting? [ ]**

A) Bagging reduces variance, while boosting reduces bias
B) Boosting increases variance, while bagging reduces it
C) Both methods increase bias
D) Boosting is faster than bagging

**17. Which ensemble method creates multiple decision trees and aggregates their predictions? [ ]**

A) K-Nearest Neighbors
B) Random Forest
C) Logistic Regression
D) Principal Component Analysis

**18. What is the role of weak learners in boosting?** **[ ]**

A) They overfit the data
B) They are combined sequentially to improve model performance
C) They work independently
D) They ignore misclassified instances

**19. Which of the following is an example of a boosting algorithm?** **[ ]**

A) Random Forest
B) AdaBoost
C) K-Means
D) PCA

**20. What type of data is typically used in time-series modeling?** **[ ]**

A) Unstructured data
B) Sequential data with timestamps
C) Randomized categorical data
D) High-dimensional image data