10 basic multiple-choice questions (MCQs) on machine learning:

1. What is machine learning?

a) A method for teaching computers to perform tasks without explicit programming

b) A technique for compressing large datasets

c) A method for visualizing data in 3D space

d) A programming language for creating artificial intelligence

2. Which of the following is an example of supervised learning?

a) Image classification

b) Clustering

c) Anomaly detection

d) Dimensionality reduction

3. What is the purpose of a training set in machine learning?

a) To evaluate the performance of a model

b) To fine-tune hyperparameters

c) To train the model to make predictions

d) To test the generalization of a model

4. Which algorithm is commonly used for regression tasks in machine learning?

a) K-Means

b) Decision Trees

c) Linear Regression

d) Support Vector Machines

5. What is the difference between classification and regression?

a) Classification predicts continuous outcomes, while regression predicts categorical outcomes

b) Classification predicts categorical outcomes, while regression predicts continuous outcomes

c) Classification uses labeled data, while regression uses unlabeled data

d) There is no difference between classification and regression

6. Which metric is commonly used to evaluate classification models?

a) Mean Squared Error (MSE)

b) R-squared

c) Accuracy

d) Root Mean Squared Error (RMSE)

7. What is the goal of unsupervised learning?

a) To predict an output variable based on input data

b) To group similar data points together based on their features

c) To learn from feedback received from an environment

d) To classify data points into predefined categories

8. What is the primary advantage of using deep learning models?

a) They require less computational resources

b) They can automatically extract features from raw data

c) They are easier to interpret compared to traditional machine learning models

d) They are less prone to overfitting

9. Which of the following is NOT a type of machine learning algorithm?

a) Reinforcement Learning

b) Semi-supervised Learning

c) Linear Programming

d) Unsupervised Learning

10. Which technique is commonly used to handle imbalanced datasets in classification problems?

a) Overfitting

b) Underfitting

c) SMOTE (Synthetic Minority Over-sampling Technique)

d) Regularization