

AI and ML Fundamentals Quiz

AI And ML · Practice Test · 20 Questions

1. Which of the following is a supervised learning algorithm?

- A) K-Means Clustering
- B) Principal Component Analysis (PCA)
- C) Linear Regression
- D) DBSCAN

2. What does the term 'overfitting' refer to in machine learning?

- A) A model that performs poorly on both training and testing data.
- B) A model that performs exceptionally well on training data but poorly on unseen data.
- C) A model that performs equally well on training and testing data.
- D) A model that requires very little computational power.

3. Which company developed the Transformer architecture, a foundational model for many modern NLP tasks?

- A) Microsoft
- B) Meta (Facebook)
- C) Google
- D) OpenAI

4. What is the primary goal of Reinforcement Learning?

- A) To classify data into predefined categories.
- B) To find patterns and structures in unlabeled data.
- C) To learn optimal actions through trial and error to maximize a reward.
- D) To reduce the dimensionality of data.

5. The Turing Test, proposed by Alan Turing, is a test of a machine's ability to:

- A) Solve complex mathematical problems.
- B) Exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human.
- C) Process vast amounts of data quickly.
- D) Generate realistic images.

6. What is a common application of Convolutional Neural Networks (CNNs)?

- A) Natural Language Processing
- B) Time Series Forecasting
- C) Image Recognition
- D) Recommender Systems

7. Which of these is a measure of model performance in classification tasks?

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

8. What is 'feature engineering' in machine learning?

- A) Selecting the most appropriate algorithm for a problem.
- B) Tuning hyperparameters of a model.
- C) Creating new input features from existing ones to improve model performance.
- D) Evaluating the model's performance on test data.

9. Which algorithm is typically used for dimensionality reduction?

- A) Support Vector Machines (SVM)
- B) Decision Trees
- C) K-Nearest Neighbors (KNN)
- D) Principal Component Analysis (PCA)

10. The 'bias-variance trade-off' in machine learning refers to:

- A) The balance between the complexity of a model and the amount of data available.
- B) The trade-off between the model's error on training data and its error on unseen data.
- C) The choice between supervised and unsupervised learning.
- D) The speed of model training versus prediction time.

11. What type of learning deals with unlabeled data?

- A) Supervised Learning
- B) Reinforcement Learning
- C) Unsupervised Learning
- D) Semi-supervised Learning

12. Which of the following is a popular deep learning framework?

- A) Scikit-learn
- B) TensorFlow
- C) Pandas
- D) NumPy

13. What is 'gradient descent' primarily used for in machine learning?

- A) Feature selection.
- B) Hyperparameter tuning.
- C) Minimizing a cost function.
- D) Data preprocessing.

14. The term 'AI Winter' refers to periods of:

- A) Rapid advancement and funding in AI research.
- B) Increased public interest and investment in AI.
- C) Reduced funding and interest in AI research due to unfulfilled promises.
- D) The successful widespread deployment of AI systems.

15. What is the core idea behind 'ensemble learning'?

- A) Using a single, highly complex model.
- B) Combining multiple simpler models to improve predictive performance.
- C) Reducing the size of the training dataset.
- D) Visualizing the decision boundaries of a model.

16. Which of these is an example of a generative AI model?

- A) Support Vector Machine (SVM)
- B) Linear Regression
- C) Generative Adversarial Network (GAN)
- D) Decision Tree

17. What is 'regularization' used for in machine learning?

- A) To increase the complexity of a model.
- B) To prevent overfitting by adding a penalty for large coefficients.
- C) To speed up the training process.
- D) To improve the interpretability of a model.

18. Which of the following is NOT an example of a type of neural network?

- A) Recurrent Neural Network (RNN)
- B) Feedforward Neural Network
- C) Decision Tree
- D) Convolutional Neural Network (CNN)

19. What is the purpose of a 'loss function' in machine learning?

- A) To measure the number of features in a dataset.
- B) To quantify the error between predicted and actual values.
- C) To determine the best algorithm for a task.
- D) To visualize the results of a model.

20. The development of Deep Blue, a chess-playing computer, is considered a significant milestone in the history of:

- A) Natural Language Processing
- B) Robotics
- C) Artificial Intelligence
- D) Computer Vision