

# **305- Machine Learning & Cognitive intelligence using Python**

## **1. What is Python?**

- A) A type of snake
- B) A programming language
- C) A data structure
- D) A web browser

**Answer: B) A programming language**

## **2. Which of the following is a feature of Python?**

- A) Strongly typed
- B) Statically typed
- C) Dynamically typed
- D) Weakly typed

**Answer: C) Dynamically typed**

## **3. What symbol is used for assignment in Python?**

- A) =
- B) ==
- C) :=
- D) =>

**Answer: A) =**

## **4. Which data structure is ordered and mutable in Python?**

- A) List
- B) Tuple
- C) Set
- D) Dictionary

**Answer: A) List**

**5. What is the result of  $5 + 2 * 3$ ?**

- A) 21
- B) 11
- C) 17
- D) 9

**Answer: B) 11**

**6. What is used to make decisions in Python?**

- A) If-Then
- B) Switch-Case
- C) For loop
- D) While loop

**Answer: A) If-Then**

**7. Which of the following is not a loop in Python?**

- A) For loop
- B) While loop
- C) Do-While loop

D) List comprehension

**Answer: C) Do-While loop**

**8. What is a collection of elements with no duplicate elements in Python?**

A) List

B) Tuple

C) Set

D) Dictionary

**Answer: C) Set**

**9. Which of the following is a correct way to define a dictionary in Python?**

A) {1: 'apple', 2: 'banana'}

B) (1: 'apple', 2: 'banana')

C) [1: 'apple', 2: 'banana']

D) |1: 'apple', 2: 'banana'|

**Answer: A) {1: 'apple', 2: 'banana'}**

**10. Which module in Python is used for date and time operations?**

A) datetime

B) time

C) date

D) calendar

**Answer: A) datetime**

**11. How do you read a file in Python?**

- A) read\_file()
- B) open\_file()
- C) file.read()
- D) open()

**- Answer: D) open()**

**12. Which library is commonly used for data manipulation and analysis in Python?**

- A) Numpy
- B) Matplotlib
- C) Pandas
- D) Scikit-learn

**- Answer: C) Pandas**

**13. What does Numpy provide in Python?**

- A) High-level mathematical functions
- B) Support for large, multi-dimensional arrays and matrices
- C) Random number capabilities
- D) Plotting functionalities

**- Answer: B) Support for large, multi-dimensional arrays and matrices**

**14. Which of the following is not a step in data cleaning and preparation?**

- A) Data transformation
- B) Data visualization
- C) Data normalization
- D) Data imputation

**- Answer: B) Data visualization**

**15. What library is commonly used for plotting and visualization in Python?**

- A) Numpy
- B) Pandas
- C) Matplotlib
- D) Seaborn

**- Answer: C) Matplotlib**

**16. What operation groups data and performs a calculation on each group?**

- A) Data cleaning
- B) Data aggregation
- C) Data visualization
- D) Data transformation

**- Answer: B) Data aggregation**

**17. Which library is used for array-oriented programming in Python?**

- A) Numpy
- B) Pandas
- C) Matplotlib
- D) Seaborn

**- Answer: A) Numpy**

**18. Which of the following is a correct way to save data using Pandas?**

- A) pandas.save\_data()
- B) dataframe.save()
- C) dataframe.to\_csv()
- D) save\_csv()

**- Answer: C) dataframe.to\_csv()**

**19. Which process model is commonly used for building machine learning systems?**

- A) Agile
- B) Waterfall
- C) KDD
- D) RAD

**- Answer: C) KDD**

**20. Which of the following is a core library for machine learning in Python?**

- A) NumPy
- B) TensorFlow
- C) Matplotlib
- D) SciPy

**- Answer: B) TensorFlow**

**21. What is the term for the historical development of machine learning?**

- A) Machine Learning Evolution
- B) Machine Learning Revolution
- C) Machine Learning History
- D) Machine Learning Genesis

**- Answer: B) Machine Learning Revolution**

**22. Which category of machine learning involves providing input-output pairs?**

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

**- Answer: A) Supervised Learning**

**23. What is the framework commonly used for building machine learning systems?**

- A) Agile
- B) KDD
- C) Waterfall
- D) Scrum

**- Answer: B) KDD**

**24. What is a feature of cognitive intelligence?**

- A) Learning from experience
- B) Following pre-defined rules
- C) Making decisions based on a set of predefined criteria
- D) None of the above

**- Answer: A) Learning from experience**

**25. Which of the following is a Python package commonly used for machine learning?**

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

**- Answer: C) Scikit-learn**

**26. What are the two main categories of machine learning?**



- A) Regression and Clustering
- B) Supervised and Unsupervised
- C) Classification and Regression
- D) Predictive and Descriptive
- **Answer: B) Supervised and Unsupervised**

**27. What does SEMMA stand for?**

- A) Sample, Extract, Modify, Model, Assess
- B) Select, Extract, Model, Manipulate, Analyze
- C) Sample, Explore, Modify, Model, Assess
- D) Select, Explore, Modify, Model, Assess
- **Answer: C) Sample, Explore, Modify, Model, Assess**

**28. Which library is commonly used for cognitive intelligence in Python?**

- A) TensorFlow
- B) Keras
- C) PyTorch
- D) OpenAI Gym
- **Answer: A) TensorFlow**

**29. What is a common machine learning task associated with supervised learning?**

- A) Clustering

- B) Dimensionality Reduction
- C) Regression
- D) Feature Extraction
- **Answer: C) Regression**

**30. Which process model emphasizes the iterative nature of machine learning projects?**

- A) KDD
- B) CRISP-DM
- C) Agile
- D) Waterfall
- **Answer: B) CRISP-DM**

**31. Which machine learning algorithm is used for classification tasks?**

- A) K-Means
- B) Linear Regression
- C) Decision Trees
- D) PCA
- **Answer: C) Decision Trees**

**32. What is the primary evaluation metric for linear regression models?**

- A) Accuracy
- B) Precision

- C) RMSE (Root Mean Squared Error)

- D) F1 Score

- **Answer: C) RMSE (Root Mean Squared Error)**

**33. Which algorithm is used for non-linear regression?**

- A) Linear Regression

- B) Logistic Regression

- C) Support Vector Machines

- D) Decision Trees

- **Answer: D) Decision Trees**

**34. Which algorithm is a type of instance-based learning?**

- A) Linear Regression

- B) Logistic Regression

- C) K-Nearest Neighbors

- D) Decision Trees

- **Answer: C) K-Nearest Neighbors**

**35. What is the output of a logistic regression model?**

- A) Continuous value

- B) Discrete value

- C) Probability

- D) Class label

- **Answer: C) Probability**

**36. Which algorithm is used for binary classification tasks?**

- A) Linear Regression
- B) K-Means
- C) Decision Trees
- D) Logistic Regression

**- Answer: D) Logistic Regression**

**37. Which algorithm is used to find the hyperplane that best separates classes in feature space?**

- A) Decision Trees
- B) Support Vector Machines
- C) K-Nearest Neighbors
- D) Linear Regression

**- Answer: B) Support Vector Machines**

**38. What is the process of evaluating a model's performance?**

- A) Model Validation
- B) Model Selection
- C) Model Evaluation
- D) Model Optimization

**- Answer: C) Model Evaluation**

**39. In which domain is supervised learning commonly applied?**

- A) Image recognition

- B) Natural Language Processing
- C) Medical diagnosis
- D) All of the above

- **Answer: D) All of the above**

**40. What is used to handle imbalanced datasets in supervised learning?**

- A) Random Forest
- B) Decision Trees
- C) SMOTE (Synthetic Minority Over-sampling Technique)
- D) Gradient Boosting

- **Answer: C) SMOTE (Synthetic Minority Over-sampling Technique)**

**41. What is the primary task of clustering algorithms?**

- A) Classification
- B) Regression
- C) Anomaly detection
- D) Grouping similar data points

- **Answer: D) Grouping similar data points**

**42. Which type of clustering algorithm builds a hierarchy of clusters?**

- A) K-Means
- B) Hierarchical Clustering

- C) DBSCAN

- D) Mean-Shift

- **Answer: B) Hierarchical Clustering**

**43. What is the most commonly used partitioning clustering algorithm?**

- A) K-Means

- B) Hierarchical Clustering

- C) DBSCAN

- D) Mean-Shift

- **Answer: A) K-Means**

**44. Which domain commonly utilizes unsupervised learning techniques?**

- A) Customer segmentation in marketing

- B) Predicting stock prices

- C) Sentiment analysis in social media

- D) Image recognition

- **Answer: A) Customer segmentation in marketing**

**45. What is the output of an unsupervised learning algorithm?**

- A) Class label

- B) Probability

- C) Clusters or groups

- D) Continuous value

Answer: C) Clusters or groups