

# CDAC DAI CCE Mock Test - 40 Questions

## Instructions:

- Total Questions: 40
- Marks: 1 mark each
- Duration: 60 minutes
- Answer all questions.
- Some are MCQs, others require brief answers or code snippets.

**Q1.** Which of the following is a mutable data type in Python?

A) Tuple B) List C) String D) Integer

**Q2.** What will be the output of the following Python code? `print(type(5 / 2))`

A) B) C) D)

**Q3.** Which keyword is used to create a function in Python?

A) def B) func C) function D) define

**Q4.** What will be the output of the following code? `x = [1, 2, 3] y = x y.append(4) print(x)`

A) [1, 2, 3] B) [1, 2, 3, 4] C) [4, 1, 2, 3] D) []

**Q5.** How do you handle exceptions in Python? Write a code snippet that catches a division by zero error.

**Q6.** What does the 'break' statement do in loops?

**Q7.** Which of the following is used to read a file in Python?

A) open() B) read() C) write() D) close()

**Q8.** Explain the difference between list comprehension and a for loop with an example.

**Q9.** What is the output of the following code? `a = {1, 2, 3} a.add(4) print(len(a))`

A) 3 B) 4 C) 5 D) Error

**Q10.** Write a Python class Person with attributes name and age and a method greet() that prints 'Hello, my name is {name}'.

**Q11.** What is the worst-case time complexity of Bubble Sort?

A)  $O(n)$  B)  $O(n \log n)$  C)  $O(n^2)$  D)  $O(\log n)$

**Q12.** Which data structure uses LIFO principle?

A) Queue B) Stack C) Graph D) Array

**Q13.** What is the output of the following Python snippet? `stack = [] stack.append(10) stack.append(20) print(stack.pop())`

A) 10 B) 20 C) None D) Error

**Q14.** Define a binary search and mention one condition required for it to work.

**Q15.** What is a hash table and where is it used?

**Q16.** Which of the following is a characteristic of a queue?

A) First-in, First-out B) Last-in, First-out C) Random access D) Ordered by value

**Q17.** Explain recursion with an example in Python.

**Q18.** What is the difference between a graph and a tree?

- Q19.** Which algorithm is preferred for finding the shortest path in a weighted graph?  
A) DFS B) BFS C) Dijkstra's Algorithm D) Bubble Sort
- Q20.** What is the output of the following code? `d = {'a': 1, 'b': 2} print(d.get('c', 3))`  
A) 1 B) 2 C) 3 D) Error
- Q21.** What is supervised learning?
- Q22.** Name two loss functions commonly used in regression problems.
- Q23.** True or False: Deep learning models always perform better than traditional machine learning models.
- Q24.** What is overfitting, and how can you prevent it?
- Q25.** What is the purpose of splitting a dataset into training and test sets?
- Q26.** Which of the following is used to scale or normalize data?  
A) Min-Max Scaling B) PCA C) K-Means D) Decision Tree
- Q27.** Explain the role of learning rate in gradient descent.
- Q28.** What is the difference between classification and clustering?
- Q29.** Which of the following evaluation metrics is used for classification?  
A) Mean Squared Error B) R-squared C) Accuracy D) Explained Variance
- Q30.** Write a Python snippet to import StandardScaler from sklearn.preprocessing.
- Q31.** What is the formula for variance?
- Q32.** A die is rolled once. What is the probability of getting an even number?
- Q33.** Define correlation in statistical terms.
- Q34.** What is the difference between mean and median?
- Q35.** True or False: The sum of all probabilities of mutually exclusive events is always 1.
- Q36.** Which library is used to create plots and graphs in Python?  
A) NumPy B) Pandas C) Matplotlib D) SciPy
- Q37.** What is the purpose of the fit() method in machine learning?
- Q38.** Explain the role of data preprocessing in a machine learning pipeline.
- Q39.** Write a Python code snippet to load a CSV file named 'data.csv' using pandas.
- Q40.** What is the difference between .loc[] and .iloc[] in pandas?