Python Test Paper (100 Marks)

Section A: Multiple Choice Questions (20 Marks)

Each question carries 1 mark. Choose the correct option.

1. Which of the following is used to define a function in Python?
   a) def
   b) function
   c) define
   d) fun
2. What is the output of print("Hello"[1:4])?
   a) Hell
   b) ello
   c) Hel
   d) lo
3. Which loop is used to iterate over a sequence in Python?
   a) while
   b) for
   c) do-while
   d) until
4. What is the keyword to exit a loop in Python?
   a) stop
   b) break
   c) exit
   d) continue
5. Which of the following is a mutable data type?
   a) Tuple
   b) String
   c) List
   d) Integer
6. What does the len() function do?
   a) Returns the length of an object
   b) Returns the type of an object
   c) Converts to string
   d) None of the above
7. Which module is used for generating random numbers?
   a) math
   b) random
   c) time
   d) sys
8. What is the correct way to handle exceptions in Python?
   a) try-except
   b) catch-throw
   c) try-catch
   d) except-try
9. In OOP, what is inheritance?
   a) Creating a new class
   b) Reusing properties of another class
   c) Hiding data
   d) Overloading methods
10. Which SQL operation is used to retrieve data from a database?
    a) INSERT
    b) UPDATE
    c) SELECT
    d) DELETE
11. What is the keyword for defining a class in Python?
    a) class
    b) struct
    c) object
    d) type
12. What is the output of list(range(1, 5))?
    a) [1, 2, 3, 4]
    b) [1, 2, 3, 4, 5]
    c) [0, 1, 2, 3, 4]
    d) [1, 3, 5]
13. Which method is used to add an element to a list?
    a) append()
    b) add()
    c) insert()
    d) Both a and c
14. What is used to create an anonymous function in Python?
    a) def
    b) lambda
    c) func
    d) anonymous
15. Which file mode is used to read a file in Python?
    a) w
    b) r
    c) a
    d) x
16. What is the purpose of the finally clause in exception handling?
    a) To catch exceptions
    b) To execute code regardless of exception
    c) To raise exceptions
    d) To skip exceptions
17. Which of the following is a dictionary method?
    a) keys()
    b) append()
    c) split()
    d) join()

18. What is the keyword for importing a module?
    a) include
    b) import
    c) require
    d) load
19. Which operator is used to check membership in a list?
    a) is
    b) in
    c) has
    d) contains
20. What does the self keyword represent in a class?
    a) Instance of the class
    b) Parent class
    c) Method name
    d) Static variable

Section B: Short Answer Questions (20 Marks)

Each question carries 1 mark. Answer in 1-2 sentences.

1. What is the difference between a list and a tuple?
2. Explain the purpose of the break statement.
3. What is string slicing in Python?
4. Define a nested loop with an example.
5. What is the use of the pass statement?
6. How do you access elements in a dictionary?
7. What are anonymous functions in Python?
8. Explain the role of the math module.
9. What is the purpose of the try-except block?
10. Define inheritance in OOP.
11. What is the use of the range() function?
12. How do you open a file in Python?
13. What is exception handling?
14. Explain the finally clause in exception handling.
15. What are class attributes?
16. What is the purpose of the random module?
17. How do you perform a SELECT query in SQL using Python?
18. What is data hiding in OOP?
19. Explain the continue statement.
20. What is a package in Python?
21.

Section C: Explain Concepts (20 Marks)

Answer any 2 out of 3 questions. Each question carries 10 marks. Answer in 150-200 words.

1. **Explain the concept of Object-Oriented Programming (OOP) in Python.** Discuss the key principles like class, object, inheritance, and data hiding with examples. How does Python implement these concepts?
2. **Discuss exception handling in Python.** Explain the use of try, except, else, and finally clauses with a suitable example. Why is exception handling important in programming?
3. **Explain the concept of file handling in Python.** Discuss the different file modes, how to read and write files, and the importance of closing files. Provide an example of reading and writing a text file.

Section D: Programming Questions (40 Marks)

Write any 2 out of 3 programs. Each program carries 20 marks.

1. **Database Program**
   Write a Python program to create a SQLite database named students.db. Create a table named students with columns id (integer, primary key), name (text), and marks (integer). Insert at least 3 records, update the marks of a student with a given ID, and display all records in the table. Handle any database errors using exception handling.
2. **File Management Program**
   Write a Python program to manage a text file named notes.txt. The program should allow the user to:
   - Write a line of text to the file.
   - Read and display the entire content of the file.
   - Count the number of words in the file.

   Use exception handling to manage file-related errors.
3. **General Program**
   Write a Python program to create a class named BankAccount with attributes account_number and balance. Implement methods to:
   - Deposit an amount.
   - Withdraw an amount (ensure sufficient balance).
   - Display the account details.

   Create two objects of the class and demonstrate the use of these methods.