Python Test

Total Marks: 50 | Time: 1 Hour

Section A – Short Answer (10 Marks)

(Answer any 5, each 2 marks)

1. What is a variable in Python? Give an example.
2. Differentiate between == and = in Python.
3. Write the syntax of an **if-elif-else** statement in Python.
4. What is the difference between break and continue? Give one example each.
5. List any **two differences** between a list and a tuple.

Section B – Operators (10 Marks)

(Answer all, each 2 marks)

6.Find the output:

```
a = 15
b = 4
a += b * 2 // 3
print(a)
```

7. Predict the output:

```
x, y, z = 10, 5, 2
print(x > y < z, x < y + z)
```

8. Write a Python expression using **ternary operator** that prints "Adult" if age >= 18 else "Minor".

9. Output of the code:

```
a = 5
b = 2
print(a ** b ** 2)
```

10.Explain the difference between **is** and == with an example where they produce different results.

Section C – Conditional & Loop Statements (15 Marks)

(Answer any 3, each 5 marks)

Concepts Used: Variables, Operators, Conditionals, Loops, Lists

11.Student Marks Analysis

Get student names and their marks for 5 subjects. Calculate:

- Total marks
- Percentage
- Grade based on percentage:
    - >=90: A
    - 80-89: B
    - 70-79: C
    - 50-69: D

- <50: Fail

  Store details in a list and display results.

12. Employee Salary Calculation

Accept **employee name and basic salary** from the user. Calculate:

- HRA = 20% of basic
- DA = 10% of basic
- PF = 5% of basic
- Net Salary = basic + HRA + DA – PF

  Display details in tabular format for all employees entered (stop when user enters ‘done’).

13.ATM Simulation

Create a program that:

- Starts with a balance of ₹10,000
- Allows user to **deposit**, **withdraw**, or **check balance** using a menu
- For withdrawal: Check if sufficient balance is available

- Loop until user chooses **Exit**

14.Shopping Cart System

Create a program where user can:

- Add products with price to a list
- Calculate total bill
- If bill > 5000, apply 10% discount
- Display final amount payable

15.Student Pass/Fail Report

Accept marks of 5 students in a list.

- Count how many passed (marks ≥ 40) and how many failed
- Display pass percentage and fail percentage

Section D – Advanced (Functions, Strings, Collections) (15 Marks)

(Answer any 3, each 5 marks)

16. Random Number Stats *(Random + Function)*

Write a function random_stats(n) that:

- Generates n random integers between **10 and 100**
- Stores them in a **list**
- Returns:
    - Sum
    - Maximum
    - Minimum
- Also convert the list into a **comma-separated string** and print it.

17. Password Strength Checker

Concepts Used: Loops, Conditionals, String Operations

Task:

Ask the user to enter a password.

Check if the password is:

- **Weak**: Length < 6
- **Medium**: Length ≥ 6 and contains letters and digits
- **Strong**: Length ≥ 8 and contains letters, digits, and special characters (!@#$%^&*)

  Print "Weak", "Medium", or "Strong".

18. Feedback Sentiment Analysis

Concepts Used: Loops, String Ops, Dictionary

Task:

Accept a feedback string from the user.

- Count how many **positive words** (good, excellent, happy) and **negative words** (bad, poor, sad) appear.

19. Text Auto-Correction

Concepts Used: String Replace, Dictionary

Task:

Take a sentence from the user and correct common mistakes using a dictionary of corrections

20. Calculator Function

Write a Python function calculator(a, b, operation) that:

- Accepts two numbers and an operation name (add, subtract, multiply, divide)
- Performs the respective operation
- For division, check if b is not zero (else print "Cannot divide by zero")
- Returns the result