Date 11/6/2025 – 12/6/2025

Python Fundamentals - Skills Assessment

**Covered Topics:**

This assessment tests the following Python concepts:

* Data types
* Type conversion
* Python Virtual Machine (PVM)
* Operators: arithmetic, relational, logical, increment & decrement
* Expression evaluation
* Conditional statements: if, else, elif, nested elif
* Loops: for, while
* Basic programs:
  + Finding biggest of 3 numbers
  + Grade evaluation from average
  + Sum of natural, even, odd numbers
* Data Structures:
  + Lists (append, insert, push, pop, extend, remove, max, min, sort, count)
  + Tuples (len, count, index), slicing
  + Sets (union, intersection, difference, disjoint, superset)
  + Dictionaries (create, access, update, modify)

# Learning Objectives:

After completing this test, a student should be able to:

* Understand and apply basic data types and conversions
* Use Python operators and evaluate expressions correctly
* Apply conditional and looping constructs to solve problems
* Perform operations on built-in data structures (lists, tuples, sets, dictionaries)
* Write small programs based on real-life logic problems

# Section A: Objective Type Questions (1 mark each)

Choose the correct answer:

1. What is the output of int(3.9)?
   1. 3.9 b) 4 c) 3 d) Error
2. Which of these is a valid logical operator in Python?
   1. & b) && c) and d) ||
3. What does list.append(x) do?
   1. Adds x to the start of the list
   2. Adds x at the end
   3. Removes x from list
   4. Returns the list length
4. Which method is used to remove an item from a dictionary?
   1. del b) remove() c) pop() d) discard()
5. What is the output of this expression: 5 > 3 and 2 < 1?
   1. True b) False c) 1 d) 0
6. A set can have:
   1. Duplicates b) Only integers c) No duplicates d) Sorted elements
7. Which method gives the number of times a value occurs in a tuple?
   1. index() b) count() c) search() d) find()
8. What will be the output of: "5" + 3?
   1. 8 b) Error c) 53 d) None
9. What is the result of: not(True or False)?
   1. False b) True c) Error d) None
10. What does slicing mylist[1:3] return?
    1. Elements at 0,1,2 b) Elements at 1 and 2 c) Element at 3 d) Error

# Section B: Programming Tasks

\*\*1. Biggest of Three Numbers using Elif\*\*

Write a program that takes three numbers from the user and prints the biggest using elif and logical operators.

\*\*2. Student Grade Finder\*\*

Write a program to take marks of 3 subjects from the user, calculate average, and print:

* A if average >= 90
* B if average >= 75
* C if average >= 50
* F otherwise

\*\*3. Sum of First N Natural Numbers\*\*

Take n from the user and print the sum of first n natural numbers using while loop.

\*\*4. List Operations\*\*

Create a list with some numbers. Perform these operations:

* Append 10
* Insert 5 at index 2
* Remove maximum value
* Print list in reverse order

\*\*5. Tuple and Set Operations\*\*

* Create a tuple of 5 integers and find its length and the count of a given number.
* Create two sets and print their union, intersection, and difference.

\*\*6. Dictionary Manipulation\*\*

Create a dictionary with student names and marks. Add a new student, update a student’s mark, and print the dictionary.

End of Assessment