

Python CAT Examination

Total Marks: 40

Time: 1 Hour 30 Minutes

Section A: Theory (25 Marks)

Answer ALL questions.

1. Define the following terms (1 mark each = 3 marks):
 - (i) Variable
 - (ii) Function
 - (iii) Module
2. State **two features of Python** as a high-level programming language. (2 marks)
3. List **two differences** between a **list** and a **tuple** in Python. (2 marks)
4. Give one example of a **syntax error** and one example of an **exception** in Python. (2 marks)
5. State the purpose of **whitespace/indentation** in Python. (1 mark)
6. Write the syntax for the following control structures (1 mark each = 2 marks):
 - (i) `if...else`
 - (ii) `for` loop
7. State **two advantages of using modules** in Python. (2 marks)
8. Differentiate between:
 - (i) `import math` and `from math import sqrt` (2 marks)
 - (ii) `while` loop and `for` loop (2 marks)
9. Give **any three advantages of Python** compared to other programming languages. (3 marks)
10. Explain what happens when the following statement is executed:

```
print(10/0)
```

(2 marks)

Section B: Practical (15 Marks)

Answer ALL questions using Python.

1. Write a program to calculate the **area of a triangle** using the formula:
 $\text{Area} = \frac{1}{2} \times b \times h$.
(5 marks)

2. Write a Python program that creates a **list of towns**, reverses it, and prints both the original and reversed lists. (5 marks)
3. Write a function `bmi(weight, height)` that calculates and returns the **Body Mass Index (BMI)**. Call the function with sample values.
(5 marks)