

(Time: 2½ hours)

Total Marks: 75

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:** 15
 - a. What is Python? List and explain feature of Python.
 - b. Write the steps to install Python and to run Python code.
 - c. Explain type conversion of variable in Python.
 - d. Explain if...else statement with example.
 - e. Explain the use of break statement in a loop with example.
 - f. What is the difference between interactive mode and script mode in Python?

2. **Attempt any three of the following:** 15
 - a. How function is defined and called in Python?
 - b. Write a function that takes single character and prints 'character is vowel' if it is vowel, 'character is not vowel' otherwise.
 - c. Short note on incremental development.
 - d. What is recursive function? Write a Python program to calculate factorial of a number using recursive function?
 - e. Explain various string operations that can be performed using operators in Python.
 - f. Explain str.find() function with suitable example.

3. **Attempt any three of the following:** 15
 - a. What is list? How to create list?
 - b. Explain try...except blocks for exception handling in Python.
 - c. Explain various built-in list functions and methods.
 - d. What is tuple in python? How to create and access it?
 - e. Explain the properties of dictionary keys.
 - f. Explain open() and close() methods for opening and closing a file.

4. **Attempt any three of the following:** 15
 - a. What is regular expression? Explain various patterns of regular expression.
 - b. Explain match() function with suitable example.
 - c. What is method overriding? Write an example.
 - d. What is multithreaded programming? Explain `_thread` module with suitable example.
 - e. What is module? What are the advantages of using module?
 - f. Explain various functions of math module.

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5. Attempt any three of the following:
- a. Explain Checkbutton widget with example.
 - b. Write short note tkMessageBox module.
 - c. What is layout management? Explain Grid manager.
 - d. Explain place geometry manager with example.
 - e. Write and explain the steps insert a row into MySql database with example.
 - f. Write short note on cursor object in Python.
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