(T) Roll No. .....

PAPER ID—10710

B. Tech. (Computer Science and Engineering) (Internet of Things and Cyber Technology including Block Chain Technology) B. Tech. (Computer Science and Engineering), B. Tech. (Computer Science and Engineering) (Aritficial Intelligence and Machine Learning) etc. (Common for All B. Tech.) EXAMINATION, 2025

(Second Semester)

OBJECT ORIENTED AND PYTHON PROGRAMMING

Time : 3 *Hours* *Maximum Marks :* 70

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Attempt all the subparts. Each subpart is of 2 marks : **2×7=14**

(a) What does the range() function do in Python ?

(b) Describe slicing in string manipulation with the help of an example.

(c) Explain the concept of dictionary in Python. Give a simple example.

(d) Write a function in Python that returns the square of a number.

(e) What is the difference between a list and a tuple ?

(f) How can you sort a list in Python ?

(g) How do you handle exceptions using try-except blocks ?

Unit I

2. Explain the different data types available in Python. Illustrate with suitable examples and also elaborate on the difference between mutable and immutable variables. 14

3. (a) Write a Python program to calculate the number of seconds in a day. 7

   (b) What is Python ? Enlist the key drivers that have accelerated the adoption of python programing in modern day industries. 7

Unit II

4. How can we add, remove and change elements in a list ? Write a Python program to show how to insert, replace and delete items in a list. 14

5. What are arguments and return values in functions ? Explain the difference between actual and formal arguments. Illustrate with the help of an example. 14

Unit III

6. (a) Explain the concept of classes and objects in Python ? Describe how to define a class, create objects and use attributes and methods with examples. 7

   (b) What is encapsulation and information hiding in Python ? Why are they important in object-oriented programming ? 7

7. (a) What is polymorphism in Python ? Explain with examples how the same function can work in different ways. 7

(b) How can we overload an operator in Python ? 7

Unit IV

8. What is event-driven programming ? How is it different from regular programming ? Explain this concept using a simple GUI example. **14**

9. What are widgets in tkinter ? Explain the use of buttons, labels, entry fields and dialogs. Also explain how to set their size, font and color. **14**

