Sr. No. of Question Paper : **2446**   **F–4**   **Your Roll No.............**

Unique Paper Code   : 2342701

Name of the Course   : **Allied Course : Computer Science**

Name of the Paper   : Programming Fundamentals and Data Structure

Semester   : IV

Duration : 3 Hours

Maximum Marks : 7.

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **Section A** is compulsory.
3. Attempt any **three** questions from **Section B**.
4. Parts of a question must be answered together.

SECTION A

1. (a) What are different types of errors in Python ? Explain with the help of example.

    (6)

    (b) What is the relevance of indentation in Python ? Explain with the help of a suitable example.

    (3)

    (c) Write the code to convert a string to number in Python.

    (2)

    (d) List out differences between 'assignment' and 'equal to' operator in Python with the help of suitable examples.

    (4)

    (e) How do you declare an array in Python ? Explain with syntax.

    (3)

    (f) Why Python is known as interpreted language ?

    (2)

    (g) Draw a flowchart to find the maximum marks from a list of marks for N students.

    (6)

    (h) What are the rules for scope of local and global variables in Python ?

    (4)

2. (a) Assume you have following list of numbers to be sorted :

    [56, 48, 12, 75, 88, 9, 55, 18, 28]

    Write down the partially sorted list after three complete passes of Selection Sort.

    (9)

(b) Write the steps of searching the number 54 in the given list using Binary Search. (6)

17, 20, 26, 31, 44, 54, 55, 65, 77, 93

3. (a) What is the use of plus(+) operator in each case : 42 + 2 and "42" + "2". Also write the output produced by Python in each case. (3)

(b) What are 'keywords' in Python? List out the rules for naming variables in Python. (5)

(c) Write a program that takes a positive integer n and produce n lines of output shown as follows :

```
1
2   3
4   5   6
7   8   9   10
```
(7)

4. (a) What will be the output of the following statements :—

(i) >>> 11%3

(ii) >>> (3 < 2) or (6 > 4)

(iii) >>> abs(2 – 3 * 7)

(iv) >>> int("56") + 2

(v) >>> list('hello')
(10)

Justify your answer in each case.

(b) What is the purpose of using function in Python ? Give the syntax of defining a function in Python. (5)

5. (a) Write a function in Python to check whether a natural number entered by the user is prime or not. (7)

(b) Python provides 'for' and 'while' loops. Illustrate their purpose with the help of an example. (8)

6. (a) Explain the concept of top-down and bottom-up programming methodologies. (6)

(b) What is Queue ? Explain any four functions that can be performed over Queues. (9)

(500)