(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. Define the term "debugging". What are the different types of errors in programming?
b. List and explain various data types in Python.
c. Write a program that asks the user to enter their name and age. Print a message addressed to them that tells the year when they will turn 100 years old.
d. Write a program to accept a number from the user and count its number of divisors.
e. Explain the continue statement with a suitable example.
f. Explain the use of logical operators and membership operators in Python.

2. **Attempt _any three_ of the following:**   **15**
a. Explain the concept of composition in functions with a suitable example.
b. Write a program to print the sum of natural numbers using recursive function.
c. Write a function to check whether the number entered by the user is an Armstrong number.
d. What is a fruitful function? Explain with the help of an example.
e. How can string be traversed with a loop? Give suitable example.
f. Explain the following string functions with example:
  i) startswith()
  ii) rstrip()

3. **Attempt _any three_ of the following:**   **15**
a. What are the different methods for adding elements to a list? Give example for each method.
b. Explain the use of slice operator for accessing elements of a tuple.
c. What is an exception? Identify the exception that will be raised by the following code. Justify your answer.

```
 i)  import math
    print("\nPower =", math.power(10,2))
ii) x = 10
    y = '10'
    print (x + y)
iii) s = "BScIT"
    for i in range(len(s)):
        print(s[i+1])
iv) x = int(input("Enter a Number:")
    print (x)
```

d. Write a Python program to take a character from the user and search that character in the file. If the character is present then print total count of that character in the file or else display the message "No such character found".

munotes.in

[TURN OVER]

53623

e. What is exception handling? How does it work?

f. Write a program to sort a dictionary in ascending and descending order of values

4. Attempt _any three_ of the following: 15

a. What is method overloading? Write a program to demonstrate method overloading.

b. What are the methods of Thread class?

c. Create a module "Area.py" with functions area_circle(), area_triangle() and area_rect(). Create a new file. Use area_circle(), area_triangle() and area_rect() from the Area module to calculate the areas.

d. What is multilevel inheritance? Write a program to implement multilevel inheritance.

e. How are threads synchronized?

f. Explain replace () and split () methods of regular expression with suitable examples.

5. Attempt _any three_ of the following: 15

a. Write a program to create the following Scale Widget:
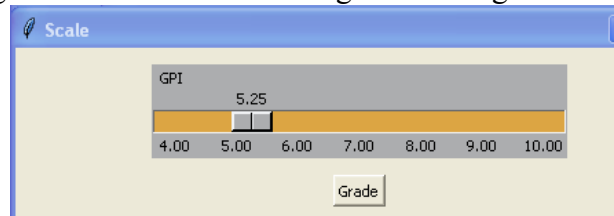
Start Value: 4, End Value: 10, Increment: 0.1, Tick Interval: 1, Label: GPI. When the user selects a value and clicks on the button for Grade, it should display the corresponding grade as a messagebox

GPI	Grade
10.00	O
9.00 – 9.99	A+
8.00 – 8.99	A
7.00 – 7.99	B+
6.00 – 6.99	B
5.00 – 5.99	C
4.00 – 4.99	D

b. Write a program to create a popup menu with two options – Black and White. The background color of the window should change when user selects the option.

c. What is the use of Entry Widget? Explain any five properties of Entry Widget.

d. Explain the standard attribute "Font" along with its options.

e. What are the different functions to retrieve rows from a table? Explain with a suitable example.

f. Write a program using the following layout to save product details in the Product Table (pro_id, pro_name, quantity) and display the message "Record saved successfully".

munotes.in

53623

C97BA73BF72E4C21E71C2EBE935938C6