Code No: **R194205I** **R19** **Set No. 1**

IV B.Tech II Semester Regular Examinations, April – 2023

PROBLEM SOLVING USING PYTHON

(Open Elective Except for Computer Science & Engineering and Information Technology)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT I

1 a) Explain the process of developing a Python program, including the steps involved in program development. [7]

b) Write a program that asks the user to enter a month and a year (both as integers) and then prints out the number of days in that month. The program should check for leap years, so February should have 29 days in leap years and 28 days otherwise. [8]

(OR)

2 a) What is the purpose of modules in Python, and how are they used to organize and simplify code? Provide an example of a program that uses modules, and explain how they are imported and used in the code. [7]

b) Discuss the different types of loops in Python, including while loops and for loops. Provide examples of situations where each type of loop would be useful. [8]

UNIT II

3 a) How do you use for loops in Python to iterate over a list, tuple, or dictionary? Provide an example of each. [7]

b) Kiran's laptop keyboard is not working properly. It has been observed that any English alphabet or digit is typed by using that keyboard, then the key that is right to it is displayed on the screen and all other keys are working properly.

Example: press "Q" it displays "W", press "F" it displays "G" and so on. Write a Python program to get the original message. (Note: use the keyboard layout given below)

[8]

Suppose : Input : O ;PBR OMFOS
Output: I LOVE INDIA

(OR)

4 a) What are the key differences between the various types of loops in Python [7]
b) What are some common methods for accessing and manipulating substrings in Python strings [8]

UNIT III

5 a) Compare and contrast the use of lists and dictionaries in Python. Provide examples of when to use each data structure. [7]
b) What are packages in Python, and how are they different from modules? Provide examples of how you can use packages to organize your code. [8]

(OR)

6 a) Explain the difference between a built-in function and a user-defined function in Python, and how to avoid naming conflicts. [7]
b) Write a Python program that asks the user to input a list of integers, and then calculate, print out the sum, average, minimum, and maximum values in the list. [8]

UNIT IV

7 a) Explain the difference between reading a file using read(), readline(), and readlines() in Python. Provide examples of when you might use each method. [7]
b) Write a Python class that represents a savings bank account, and provides methods for depositing funds, withdrawing funds, and balance enquiry. [8]

(OR)

8 a) Write a Python program to copy the contents of one file into another file [7]
b) Explain how to use polymorphism in Python to create more flexible and reusable code. Provide an example of a real-world application where polymorphism might be useful. [8]

UNIT V

9 a) Explain the difference between syntax errors and exceptions in Python, and give an example of each. [7]
b) What is a GUI? What are some common GUI frameworks used in Python? [8]

(OR)

10 a) What are user-defined exceptions in Python, and how can you use them in your code? Give an example of a situation where you might want to define your own exception. [7]
b) Describe the basic programming concepts introduced in Scratch, and explain how they relate to programming in Python. What are some similarities and differences between the two languages, and how can you use your knowledge of Scratch to learn Python more effectively? [8]