

Total No. of Questions : 10]

SEAT No. :

PD-5300

[Total No. of Pages : 3

[6401]-2410
F.E. (BOS-IT)
(PCC-151-ITT): Programming and Problem Solving
(2024 Credit Pattern) (Semester - I/II)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidate:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Assume suitable data if necessary.*

- Q1)** a) What are the types of problems? Explain in detail. [3]
- b) Explain brief history of python programming language and list different software developed in python. [3]
- c) Describe object oriented programming features. [4]
- d) Define problem solving. Write down steps of problem solving process. [4]

OR

- Q2)** a) Describe flowchart and symbols in detail. [3]
- b) Write down the applications of python programming languages. [3]
- c) Explain the python programming features. [4]
- d) Describe TOP-DOWN design approach in detail. [4]

P.T.O.

- Q3)** a) List down all the advanced data types in python & Explain any two. [3]
- b) Describe the following terms with examples (any three): [3]
- i) break ii) continue iii) pass iv) range
- c) Implement a program in python to check whether a number entered by user is positive, negative, or zero [4]
- d) Explain decision control statements in python in detail. [4]

OR

- Q4)** a) Explain different arithmetic operators with suitable example [3]
- b) Write down the difference between for loop and while loop. [3]
- c) Develop a python program to check whether a given number is even or odd. [4]
- d) What is the dictionary data type? Explain any 3 operations of the dictionary data type. [4]
- Q5)** a) Compare Regular functions and lambda functions in python with suitable examples. [4]
- b) Describe the use of the return statement in functions with example. [5]
- c) Develop an algorithm & program to concatenate two strings using + operator. [5]

OR

- Q6)** a) Analyze the difference between ord () and chr () functions with examples. [4]
- b) Explain the concepts of variable scope (local and global) and lifetime in python with suitable code examples. [5]
- c) Implement program to reverse a string using user defined function. [5]

- Q7)** a) Describe the purpose & use of file handling. [4]
b) Differentiate between mutable and immutable data types with focus on dictionaries in python. Provide examples. [5]
c) Implement a program to append data to an already existing file. [5]

OR

- Q8)** a) Explain different types of files in detail. [4]
b) Explain key directory methods: mkdir (), rmdir () listdir (), and chdir () with syntax and usage example. [5]
c) Develop a program to print the absolute path of a file using OS. path. join. [5]
- Q9)** a) Differentiate between class variables and object variables with an example. [4]
b) Analyze the significance of garbage collection in python how does python handle object destruction? [5]
c) Describe classes and objects in detail. [5]

OR

- Q10)** a) Explain the role of __init__ () and __del__ () methods in object lifecycle. [4]
b) Distinguish between public and private members of a class with proper examples. [5]
c) Describe data abstraction & Encapsulation in detail. [5]

