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]**