Total No. of Questions : 6]

SEAT No. :

PF-12705

[Total No. of Pages : 4

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F.E.
PCC-151-ITT : PROGRAMMING AND PROBLEM SOLVING
(2024 Pattern) (Semester - II)

Time : 2½ Hours] *[Max. Marks : 60*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Multiple - Choice questions : **[10]**

a) Which of the following is NOT a programming paradigm supported by python?

i) Object Oriented ii) Procedural

iii) Functional iv) Wordware Programming

b) Which statement skips the current iteration?

i) break ii) continue

iii) pass iv) return

c) def add (a, b) :

return a + b

print (add (2, 3))

i) 5 ii) 6

iii) 23 iv) Error

d) Which data structure is most appropriate for storing roll numbers and names?

i) List ii) Tuple

iii) Dictionary iv) String

e) Why are class variables preferred for counting the number of objects created?

i) Shared among all objects ii) Faster execution

iii) Local Scope iv) Dynamic allocation

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f) Which method can be called without creating an object?

i) Instance method ii) Satic method

iii) Constructor iv) Destructor

g) Which method reads the entire file?

i) read ( ) ii) get ( )

iii) input ( ) iv) write ( )

h) Which feature impores code reusability?

i) variables ii) functions

iii) loops iv) comments

i) Which data type stores an ordered collection of elements?

i) Set ii) Dictionary

iii) List iv) Boolean

j) Which scenario best demonstrates poor problem solving practice?

i) Dividing a problem into modules

ii) Identifying inputs & outputs

iii) Writing code before understanding requirements

iv) Testing each module independently

Q2) Solve any two :

a) Discuss the importance of problem solving using computers. Explain how computers assist in solving complex problems. **[5]**

b) Python is considered a multi-paradigm programming language. Justify this statement by discussing different programming paradigms supported by python. **[5]**

c) Explain the top - down desion approach in problem-solving. Desion a modular solution for a library management system using this approach. **[5]**

d) Describe the stages involved in the problem-solving process and illustrate them with a suitable real-life example. **[5]**

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Q3) Solve any two :

a) Explain the syntax and working of for and while loops. Discuss situations where each loop is most appropriate. **[5]**

b) Explain the purpose of Break, continue, pass, and else-statements used with loops. Illustrate each with suitable examples. **[5]**

c) Analyze the advantages and limitations of using sets and dictionaries for data management in python applications. **[5]**

d) Write a python program to count the frequency of each element in a list using a direction. Explain the logic used. **[5]**

Q4) Solve any two :

a) Define a function in python. Explain the syntax for function, definition and function call with a suitable example. **[5]**

b) Design a python program using functions to perform arithmatic operations (addition, subtraction, multiplication, devision). **[5]**

c) Assess the significance of modules and pakages in enhancing the maintainability and scalability of python projects. **[5]**

d) Demonstrate the use of string concatentation and string multiplication in python through suitable examples and discuss their applications. **[5]**

Q5) Solve any two :

a) Explain the concept of file paths in python. Differentiate between absolute and relative file paths with examples. **[5]**

b) Explain various methods used for reading data from files in python, compare read ( ), read line ( ), and read lines ( ). **[5]**

c) Differentiate between overwriting and appending data in a file. Illustrate with suitable examples. **[5]**

d) Evaluate the importance of file renaming and file deletion operations in maintaining an organized file system. Illustrate your answer with suitable examples. **[5]**

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Q6) Solve any two :

a) Explain the concepts of classes, objects, methods and massage passing with suitable examples. **[5]**

b) Differentiate between inheritance and containership with suitable examples. **[5]**

c) Define classes and objects. Illustrate how objects are created from a class in python. **[5]**

d) Describe the purpose of the _init _( ) method in python classes with a suitable example. **[5]**



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