BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-III Computer Science & Engineering AI & ML : SUMMER : 2025
SUBJECT: PYTHON PROGRAMMING

Day : Monday
Date : 19/05/2025

S-29210-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labelled diagram **WHEREVER** necessary.
4) Use of Non-programmable **CALCULATOR** is Allowed.
5) Assume suitable data if necessary.

Q.1	What are different data types used in python. Provide examples to illustrate each data type.	[10]
	OR	
Q.1	What is the difference between brackets, braces, and parentheses in Python? Describe the role of each in the context of Python syntax, and provide examples of their usage.	[10]
Q.2	Explain the purpose of conditional statements in Python. Describe the syntax and usage of if, if-else, and nested if-else statements, providing examples for each.	[10]
	OR	
Q.2	Explain the built-in math functions available in Python. Mention few common math functions and provide examples of how to use them. Write a Python function that takes a number as a parameter and checks if the number is prime or not.	[10]
Q.3	What are the different methods to delete elements from a list in Python? Explain how to use the remove, pop, and del statements, providing examples for each method. List and explain at least five built-in functions or methods that can be used with lists in Python.	[10]
	OR	
Q.3	What methods can be used to delete elements from a dictionary in Python?	[10]
Q.4	What are built-in exceptions in Python? List at least five common built-in exceptions and describe the scenarios in which they might be raised.	[10]
	OR	
Q.4	Design a class hierarchy for a library management system. Create a base class Book with attributes title, author, and isbn. Implement exception handling to manage invalid ISBN formats. Create subclasses EBook and PrintedBook. Each class should implement a display info() method.	[10]
Q.5	Explain what a regular expression (regex) is and its purpose in programming. How are regular expressions used in Python? Provide an example of a simple regex pattern and describe what it matches.	[10]
	OR	
Q.5	What are some common use cases for regular expressions in Python? Provide at least three examples of practical applications, such as validating input, searching for patterns.	[10]

P.T.O.

Q.6 What is Object-Oriented Programming (OOP)? Discuss its key principles, such as encapsulation, inheritance, and polymorphism, and explain how they enhance software development. [10]

OR

Q.6 Create a class hierarchy for a bank system. Implement a base class Account with attributes for account_number and account_holder. Create two subclasses, SavingsAccount (with an interest_rate attribute) and CurrentAccount (with an overdraft_limit attribute). Each class should have a method display_info() to print the details. [10]

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