

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

Day : Friday
Date : 19/12/2025

W-29210-2025

Time : 10:00 AM-01:00 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 Discuss at least five key features of Python that contribute to its popularity among developers. Create a simple calculator program that performs addition, subtraction, multiplication, and division based on user input. [10]

OR

Q.1 Describe the different ways to run a Python program, including interactive mode and script mode. Provide examples of each mode and discuss the advantages of using one over the other. [10]

Q.2 What are string slices in Python? Write a program to accept a string and count all occurrences of its first character to '\$'. [10]

OR

Q.2 Explain the purpose of conditional statements in Python. Explain the use of pass, continue and break. [10]

Q.3 Explain different functions used with list. Provide examples of accessing elements using both positive and negative indexing. [10]

OR

Q.3 How do you create a dictionary in Python? Discuss different dictionary operations, provide examples. [10]

Q.4 What is file handling? Write a python program to read and write data from a file. [10]

OR

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]

Q.5 Explain what a regular expression (regex) is and its purpose in programming. How are regular expressions used in Python? [10]

OR

Q.5 What does the match function in Python's re module do? How does it differ from the search function? Provide an example that shows both a scenario where match succeeds and another where it fails. [10]

P.T.O.

Q.6 Create a class hierarchy for a bus booking system. Implement a base class Passenger with attributes for name and passenger_id. Create two subclasses, RegularPassenger (with a seat_number attribute) and VIPPassenger (with an additional lounge_access attribute). Each class should have a method display_info() to print the details. [10]

OR

Q.6 What is method overriding in Python? Explain how a derived class can override a method from its base class. Provide an example demonstrating this concept. [10]

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