

7. How memory is managed in Python ? Also explain with an example how strings are immutable in Python. Write a Python program to print even length words in a string. [20]
- * 8. What is difference between Instance variable and Instance method ? Define the Concept of overloading and overriding with example. [20]
- * 9. What are the four pillars of OOPS in Python ? Define __init__ in Python. Differentiate between Multilevel and Multiple Inheritance with example. [20]
10. Discuss File I/O in python. How to perform open, read, write, and close into a file ? Write a Python program to read a file line-by-line store it into a variable. [20]

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BCA IIIrd Semester Examination, 2025

PYTHON PROGRAMMING

Paper : NBCA-304

Time : 2 Hours]

[M.M. : 70]

Note :- Attempt Four questions in all. One question out of two questions (10 marks each) is to be attempted from Section 'A'. Remaining three questions (each carrying 20 marks) are to be attempted out of eight questions given in Section 'B'.

Section-A

[$10 \times 1 = 10$]

Note :- Attempt any one question.

1. Explain why python is considered an interpreted language and also discuss about Programming Cycle for Python. Write Python Program to swap two numbers without Intermediate / Temporary variables. Prompt the user for input. [10]

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Or

- * 2. What is the difference between Nested if and if-elif-else statement in Python ? Write a program to check an input number is Prime or not. [10]

Section-B

[$20 \times 3 = 60$]

Note :- Attempt any three questions.

3. Define list operator (+, *, in, is, del and list slicing with step size) with example. Consider the list with mixed type of elements, such as L1 = [1, 5, 'a', 4, 7, 'z', 9, 'x', 0, 6, 'b']. Create another list using list comprehension which consists of only the string element present within list L1. [20]

4. Discuss concept of mutability in list with an example. Write a program to pass a list of function. Calculate the total number of positive and negative numbers from the list and then display the count in terms of dictionary. Where Input L = [1, -2, -3, 4] and Output {'Neg':2, 'Pos':2}. [20]

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- * 5. Show an example where both Keyword arguments and Default arguments are used for the same function in a call. Show both the definition of the function and its call. Write a recursive function to compute the factorial of an input number N. [20]

6. Explain the concept of immutability in tuples with an example. Write a Python function that accepts a list of tuples containing student names and marks.

Return a new tuple that contains:

- Names of top 3 scorers (sorted descending by marks)
- Average marks of all students

Example Input :

[("Riya", 85), ("Amit", 92), ("Neha", 78), ("Karan", 90)]

Expected Output : ((Amit', 'Karan', 'Riya'), 86.25)

[20]

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