



PAPER ID-310609

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Subject Code: BMC301

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MCA
(SEM III) THEORY EXAMINATION 2025-26
PYTHON PROGRAMMING

TIME: 3 HRS**M.MARKS: 70**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A**1. Attempt all questions in brief.****02 x 7 = 14**

Q no.	Question	CO	Level
a.	What is the purpose of the <i>id()</i> function in Python?	CO-1	K1
b.	How does list slicing differ from string slicing in Python?	CO-2	K2
c.	State one key property that distinguishes a dictionary from a list in Python.	CO-3	K1
d.	What is the role of the <i>__init__.py</i> file in a Python package?	CO-4	K1
e.	Define an 'exception' in the context of Python programming.	CO-5	K1
f.	Differentiate between the <i>break</i> and <i>continue</i> statements in a loop.	CO-1	K2
g.	Why are tuples considered 'immutable' data types?	CO-2	K1

SECTION B**2. Attempt any three of the following:****07 x 3 = 21**

a.	Write a Python program to check whether a given number is an Armstrong number or not. Explain the logic used.	CO-1	K3
b.	Demonstrate with an example how negative indexing and slicing work on Python strings. Write a code snippet to reverse a string using slicing.	CO-2	K3
c.	Explain the concept of 'recursion' in Python functions. Write a recursive function to calculate the factorial of a number.	CO-3	K3
d.	Describe the different file opening modes in Python. Write a program to read a text file and count the number of lines in it.	CO-4	K3
e.	What is a DataFrame in the context of Python for data analysis? How is it different from a Series? Write code to create a simple DataFrame using pandas.	CO-5	K3

SECTION C**3. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain Python coding standards (PEP 8) with respect to indentation, naming conventions, and line length. Why is adherence to these standards important?	CO-1	K4
b.	Write a Python program that takes a number as input and prints its multiplication table up to 10, using nested loops. Also, handle invalid input using exception handling.	CO-1	K3

4. Attempt any one part of the following:**07 x 1 = 07**

a.	Compare the methods and operations available for lists and tuples in Python. Under what circumstances would you prefer using a tuple over a list?	CO-2	K4
b.	Write a Python program that takes a list of numbers and returns a new list containing only the even numbers. Use list comprehension.	CO-2	K3



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TIME: 3 HRS**M.MARKS: 70****5. Attempt any one part of the following:****07 x 1 = 07**

a.	Discuss the difference between mutable and immutable data types in Python. How does this distinction affect the way arguments are passed to functions?	CO-3	K4
b.	Write a Python function that accepts a dictionary as an argument and returns a new dictionary with keys and values swapped. Handle cases where values are not unique.	CO-3	K3

6. Attempt any one part of the following:**07 x 1 = 07**

a.	Explain the use of the <i>random</i> and <i>math</i> modules in Python with two examples each. How do these modules enhance the functionality of Python?	CO-4	K4
b.	Write a Python program that uses regular expressions to find all email addresses in a given text file.	CO-4	K3

7. Attempt any one part of the following:**07 x 1 = 07**

a.	Explain the <i>try</i> , <i>except</i> , <i>else</i> , and <i>finally</i> clauses in Python exception handling with a suitable example. How do user-defined exceptions improve error handling?	CO-5	K4
b.	Write a Python program to read a CSV file using pandas, display its first five rows, and handle any potential file-related exceptions.	CO-5	K3