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G.L. BAJAJ INSTITUTE OF TECHNOLOGY & MANAGEMENT
GREATER NOIDA
MCA (III SEM)
SESSIONAL TEST-1 (ODD SEM 2025-26)
Python Programming (BMC 301)

Faculty Name: Dr Bishwajeet Pandey, Dr. Kajal Rai

Time: 2:00 Hrs **Max. Marks: 50**

Note:
(i) **No student will be allowed to leave the examination Room before end of exam.**
(ii) **Diagram should be neat and clean.**
(iii) **Mention Question number/section correctly.**
(iv) **Be precise in your answer.**
(v) **Do not write anything on question paper except Roll number.**

Course Outcomes:

Following are the course outcomes of the subject: -

CO Code	Course Outcome(CO)	Bloom's Level
CO1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.	K1,K2
CO2	Express proficiency in the handling of strings and functions	K1, K2
CO3	Determine the methods to create and manipulate Python programs by utilising data structures such as lists, dictionaries, tuples, and sets.	K3
CO4	Use OO Concepts while Programming in Python	K1, K2
CO5	Work with Python using GUI	K2, K3

Section: A

1. Attempt all questions. **(2*5= 10)**

Q.No.	Questions	Marks	CO	BL
a)	Why is Python called a high-level programming language?	2	CO1	K1
b)	Prepare a Python program to print a table of n using a loop in Python, where n is a number taken from the user. **Probable Output:** Enter Number n to print a Table: 5 5 10 15 20 25 30 35 40 45 50	2	CO1	K3
c)	Give a suitable example of a nested if-else statement.	2	CO1	K1
d)	Differentiate between a list and a tuple in Python (any two points).	2	CO2	K2
e)	Demonstrate the output of s = "Python" print(s[-1], s[2:5])	2	CO2	K3

Section: B

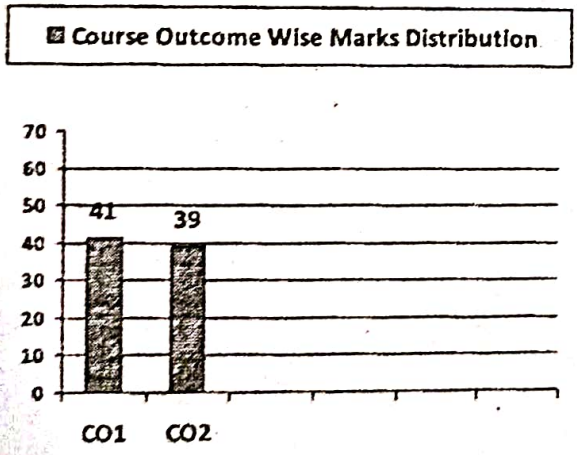
2. Attempt any four of the following:				(4*5 = 20)
Q. No.	Questions	Marks	CO	BL
a)	Explain any five features of Python with suitable examples.	5	CO1	K2
b)	Differentiate between mutable and immutable data types, specifically with respect to lists and tuples, using examples.	5	CO1	K2
c)	As a freelancer, you work on several client projects, each with a different hourly rate. You track the hours worked for each client. At the end of the month, calculate your total income based on the hours worked and the hourly rates for each client. Discuss a Python program that takes three inputs: a list of client names, a list of hours worked, and a list of hourly rates, then calculates and outputs your total income for the month.	5	CO1	K2
d)	Analyse a Personalised Python Environment by changing our Python default prompt >>> to Yourname>>>.	5	CO2	K4
e)	Imagine you're managing a parking lot with multiple sections. Each section has several parking spots. Some sections are designated for compact cars, while others are for regular vehicles. You need to check whether a car can park in a specific section based on its size and dimensions. A compact car can only park in compact spots, but a regular car can park in both compact and regular spots. You need to check multiple sections and spots in a loop to determine if a vehicle can park in any available spot. Use Python code to handle this scenario.	5	CO2	K3
f)	Illustrate a Python program to count the number of vowels in a given string	5	CO2	K3

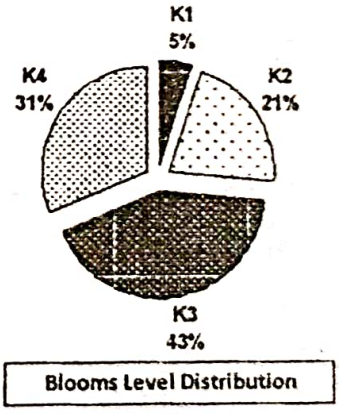
Section: C

3. Attempt any one question				(10 *1 = 10)
Q. No.	Questions	Marks	CO	BL
a)	Write a Python program using if–elif–else statements to accept the marks of a student in 5 subjects. Calculate the average and display the grade according to the following conditions: • Average ≥ 90 → Grade A • 75 ≤ Average < 90 → Grade B • 60 ≤ Average < 75 → Grade C • 40 ≤ Average < 60 → Grade D • Average < 40 → Grade F	10	CO1	K3
b)	Compare two Python programs in terms of Time and Space complexity A. A python program using a **loop** to generate and display the following pattern: * * * * * * * * * * * * * * * B. A python program using a **loop** to generate and display the following pattern: * * * * * * * * * * * * * *	10	CO1	K4

4. Attempt any one question (10 *1 = 10)

Q. No.	Questions	Marks	CO	BL
a)	Scenario: You are working on a group assignment, and your teacher says that each group member must contribute a score that meets several criteria to qualify for extra credit. These criteria are: The score must be divisible by both 2 and 3. The score must be at least 5. The score must not be equal to 9. If the score is prime, it still needs to be divisible by both 2 and 3. **Construct** a Python program to check if the score qualifies based on these conditions.	10	CO2	K3
b)	Let us assume that we are building a feature for a social media app. Each post has a number of likes stored in a list. Write a Python program to add 10 extra likes to every post. Then write another program to find which posts have more than 100 likes and mark them as "Trending." **Compare** both programs in terms of space and time complexity.	10	CO2	K4





Checked By
(Head of Department)