Program:	F.Y.B.Sc DS	**Semester:**	I	**Program Code:**	UGDS03
Course:	Python Programming			**Course Code:**	NUDS101

Duration: 1 Hour **Examination Pattern:** NEP-Autonomous - External. **Max. Marks:** 30

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat diagrams wherever necessary.
4. CO (Course Outcome), KL (Knowledge Level).

Examination:

REGULAR

Q. 1		**Attempt any TWO of the following.**	[10]	CO's	KL's
	(a)	Explain Python programming language. Discuss its important features and applications.		CO1	L2
	(b)	What is type conversion in Python? Differentiate between implicit and explicit conversion.		CO2	L2
	(c)	Write a program in python to Find Quotient and Remainder Using Function. [Assume two numbers x and y as user input]		CO4	L3

	(d)	Predict the output of following codes:
		i)
		`numbers = [10, 15, 20, 25, 30]`
		
		`total = 0`
		
		`for n in numbers:`
		`  if n % 5 == 0:`
		`  total = total + n`
		
		`print("Total =", total)`
		`print("Number of elements =", len(numbers))`
		
		ii)
		`numbers = [2, 4, 6, 8]`
		
		`square = lambda x: x * x`
		
		`total = 0`
		
		`for n in numbers:`
		`  result = square(n)`
		`  print(n, result)`
		`  total = total + result`
		
		`print("Total =", total)`
				CO3 /CO 4	L4

Q. 2		**Attempt any TWO of the following.**	[10]	CO's	KL's
	(a)	How Python arrays are used with the array module. Discuss typecodes and demonstrate array operations with suitable examples.		CO2	L3
	(b)	State the use of following string-testing functions in Python with suitable examples. i) isalnum() ii) isdecimal() iii) isdigit() iv) islower() v) isnumeric()		CO4	L2
	(c)	What is recursion? Explain recursive functions in Python with suitable		CO4	L2
	(d)	Explain NumPy arrays and discuss their important attributes		CO2	L2

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Q. 3		**Attempt any TWO of the following.**	**[10]**	**CO's**	**KL's**
	(a)	What different data types are available in Python? Explain with suitable examples.		**CO2**	**L2**
	(b)	Explain if, if-else and if-elif-else statements in Python with examples.		**CO3**	**L2**
	(c)	How can strings be split, joined, and transformed in Python?		**CO4**	**L2**
	(d)	Write a Python program using a function to calculate the area and perimeter of a rectangle.		**CO4**	**L3**

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