Program: F.Y.B.Sc DS **Semester:** II **Program Code:** UGDS03

Course: Advanced Python Programming **Course Code:** NUDS201

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

Examination:
REGULAR

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat diagrams wherever necessary.

Q. 1		**Attempt any TWO of the following.**	[10]	Course Outcome	Knowledge Level
	(a)	Define Lists in Python with suitable examples. State the properties of lists.		CO1	K2
	(b)	Explain tuple indexing and slicing in detail with examples.		CO1	K3
	(c)	What is a regular expression? Explain sequence characters, quantifiers and special characters.		CO2	K2
	(d)	State the difference between normal Python interpreter and IPython.		CO3	K2
Q. 2		**Attempt any TWO of the following.**	[10]	Course Outcome	Knowledge Level
	(a)	Discuss universal functions (ufuncs) in NumPy in detail with examples.		CO3	K2
	(b)	Illustrate the use of Fancy Indexing in NumPy for accessing and manipulating array elements with suitable example.		CO4	K3

	(c)	Predict the output :
		i)
		`import re`
		
		`text = "My marks are 85 and 90"`
		`result = re.findall(r"\d+", text)`
		
		`print(result)`
		
		ii)
		`import pandas as pd`
		
		`data = {'Dept':['IT','IT','HR'],`
		`'Salary':[50000,60000,40000]}`
		
		`df = pd.DataFrame(data)`
		`print(df.groupby('Dept')['Salary'].mean())`
				CO4	K3

	(d)	Define following: i) Legend in Matplotlib ii) Density Plot iii) Contour Plot.		CO5	K1
Q. 3		**Attempt any TWO of the following.**	[10]	Course Outcome	Knowledge Level
	(a)	Write a python code to display current date and time and format it in different styles.		CO3	K2
	(b)	Explain IPython magic commands with examples and outputs.		CO3	K3

6 2 2 3 2 1

	(c)	Define high performance Pandas functions eval() and query().		CO5	K3
	(d)	Explain visualization using Matplotlib with suitable examples and diagrams.		CO5	K3

- - X - - X -

6 2 2 3 2 1