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Course Code

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Second Semester MCA Degree Examinations, August 2026

DATA ANALYTICS USING PYTHON

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO: PI)</u>
<u>MODULE – 1</u>			
1.	a. Explain Descriptive, Diagnostic, Predictive, and Prescriptive data analytics	10	(2:1:1.4.1)
	b. Describe the Big Data Analytics Framework and identify the key technologies involved	10	(2:1:3.6.2)
(OR)			
2.	a. Explain Univariate Data Analysis and demonstrate measures of central tendency and dispersion with examples	10	(3:1:2.6.4)
	b. Classify different types of data visualizations and justify their use in specific scenarios with examples	10	(3:1:3.6.2)
<u>MODULE – 2</u>			
3.	a. Demonstrate the use of different looping statements in Python with examples: while, for, range, and sequences	10	(2:2:1.4.1)
	b. Construct a Python program to determine student grades based on percentage input	10	(2:2:2.6.4)
(OR)			
4.	a. Describe the various operators in Python and apply them in relevant expressions	10	(2:3:1.4.1)
	b. Illustrate the use of *args and **kwargs in Python functions with examples	10	(3:2:3.6.2)
<u>MODULE – 3</u>			
5.	a. Demonstrate various string methods in Python with examples	10	(3:2:2.6.4)
	b. Discuss different methods to delete elements from a list using suitable functions	10	(3:3:3.6.2)
(OR)			
6.	a. Construct a Python program demonstrating object-oriented concepts such as encapsulation, overloading, and inheritance	10	(3:3:3.6.2)
	b. Illustrate file handling operations in Python using open(), read(), write() functions	10	(2:3:1.4.1)

MODULE – 4

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| 7. | a. | Explain different data types supported by NumPy and demonstrate how to define arrays using these data types | 10 | (2:4:2.6.4) |
| | b. | Explain the basic data structures in Pandas and demonstrate creation and manipulation of Series and DataFrames | 10 | (3:4:1.4.1) |

(OR)

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| 8. | a. | Construct and manipulate basic NumPy arrays and perform indexing and slicing operations | 10 | (3:4:3.6.2) |
| | b. | Illustrate methods to handle missing data in Pandas using suitable examples | 10 | (3:4:3.6.2) |

MODULE – 5

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| 9. | a. | Illustrate how to customize plots in Matplotlib including legends, labels, colorbars, and titles | 10 | (3:5:1.4.1) |
| | b. | Customize Seaborn plots using themes, palettes, and styling options | 10 | (3:5:2.6.2) |

(OR)

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|-----|----|---|-----------|--------------------|
| 10. | a. | Compare different visualization techniques in Matplotlib and justify their use in appropriate scenarios | 10 | (3:5:2.6.1) |
| | b. | Illustrate how Seaborn integrates with Pandas to produce statistical visualizations | 10 | (3:5:1.4.1) |

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