

USN

Course Code

22CS/AI/CA/CD463

Fourth Semester B.E. Degree Examinations, July 2026

INTRODUCTION TO DATA ANALYTICS

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. Apply the concepts of BI to illustrate the BIDM life cycle using a diagram.	06	(3 :1: 1.2.1)
	b. Illustrate with a figure, explain the data processing chain in detail.	07	(3 :2: 1.2.1)
	c. Demonstrate the different types of patterns with examples.	07	(3 :3: 1.2.1)
(OR)			
2.	a. Identify the important data mining techniques and explain.	06	(3 :1: 1.2.1)
	b. Apply database concepts to compare database systems and data warehouse.	07	(3 :2: 1.2.1)
	c. Apply BI applications to demonstrate how BI is used in the following domains: (i) Customer Relationship Management (ii) Health care	07	(3 :1: 1.2.1)
<u>Module-2</u>			
3.	a. Demonstrate with a figure, BI-DW architecture.	06	(3 :2: 1.2.1)
	b. Demonstrate the OLTP System characteristics and merits & demerits.	07	(3 :2: 1.2.1)
	c. Apply data management concepts to compare OLTP systems and data warehouses with suitable examples.	07	(3 :2: 1.2.1)
(OR)			
4.	a. Identify and explain the characteristics of data warehouse.	06	(3 :2: 1.2.1)
	b. Demonstrate with a figure, the main components of a data warehouse.	07	(3 :2: 1.2.1)
	c. Apply data warehouse design concepts to demonstrate the bottom-up approach with examples and evaluate its advantages and disadvantages.	07	(3 :2: 1.2.1)
<u>Module-3</u>			
5.	a. Illustrate the main components of BI with a neat diagram and explain in detail.	06	(3 :3: 1.2.1)
	b. List and explain the different characteristics of BI.	07	(3 :3: 1.2.1)
	c. What do you mean by data quality and what are the best practices to maintain to data quality?	07	(3 :3: 1.2.1)

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

(OR)

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| 6. | a. | Illustrate the concept of structured and unstructured data with example. | 06 | (3 :3: 1.2.1) |
| | b. | Differentiate between structured data verses unstructured data. | 07 | (4 :3 1.2.1) |
| | c. | Illustrate the concept of data lake and its types along with its advantages and disadvantages. | 07 | (3 :3: 1.2.1) |

Module-4

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| 7. | a. | Differentiate between data lake and data warehouse. | 06 | (3 :4: 1.2.1) |
| | b. | Explain the main components of data lake with a neat diagram. | 07 | (3 :4: 1.2.1) |
| | c. | Illustrate the benefits of modern business Intelligence system. | 07 | (3 :4: 1.2.1) |

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| 8. | a. | Define the term data visualization and illustrate the aim of data visualization. | 06 | (3 :4: 1.2.1) |
| | b. | Illustrate the steps involved in story telling with data. | 07 | (3 :4: 1.2.1) |
| | c. | Demonstrate with a figure / example the following types of data visualization tools:
(i) Tree Diagram (ii) Tree Map | 07 | (3 :4: 1.2.1) |

Module-5

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| 9. | a. | Identify the 3 key elements on which the decision tree algorithm differs. Explain each one. | 10 | (3 :5: 1.2.1) |
| | b. | Demonstrate data quality and the best practices you see in today's industry related to data quality. | 10 | (3 :5: 1.2.1) |

(OR)

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| 10. | a. | Compare the popular decision tree algorithms (C5, CART and CHAID). | 10 | (3 :5: 1.2.1) |
| | b. | Write short note on (i) Power BI (ii) Tibco Spotfire | 10 | (3 :5: 1.2.1) |

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