

Enrollment No./Seat No.:

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MBA - SEMESTER - III EXAMINATION - WINTER 2025**

**Subject Code: N2539303**

**Date: 18-12-2025**

**Subject Name: Business Intelligence & Analytics**

**Time: 10:30 AM TO 01:30 PM**

**Total Marks: 70**

**Instructions**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. USE of SIMPLE calculators AND non-programmable scientific calculators are permitted.**

	<b>Marks</b>
<b>Q.1</b> ALL 7 Questions must be Compulsory.	<b>14</b>
(a) Types of Metadata	
(b) ER Model	
(c) Data Lake	
(d) Schema and its types	
(e) SEMMA	
(f) Classification vs. Clustering	
(g) Deep Neural Network	
<b>Q.2</b> (a) Explain the concept of BI and discuss its uses.	<b>07</b>
(b) What is Data Warehouse? Explain its architecture.	<b>07</b>
<b>OR</b>	
(b) Differentiate between OLAP and OLTP with examples.	<b>07</b>
<b>Q.3</b> (a) Discuss the components and types of BA.	<b>07</b>
(b) Explain Big Data. Discuss its evolution and characteristics.	<b>07</b>
<b>OR</b>	
(a) Compare Business Intelligence, Business Analytics, and Data Science.	<b>07</b>
(b) Define digital data. Explain its sources and characteristics.	<b>07</b>
<b>Q.4</b> (a) Explain Data Mining. Discuss its applications, and the KDD process.	<b>07</b>
(b) What is NLP? Explain the text mining process.	<b>07</b>
<b>OR</b>	
(a) Define Sentiment Analysis. Explain its process and challenges.	<b>07</b>
(b) What is Web Analytics? Discuss the taxonomy of web mining.	<b>07</b>

**Q.5****CASE STUDY:**

A retail e-commerce company, ShopSmart, receives millions of customer interactions such as web clicks, search terms, cart activity, and product reviews daily. However, the management struggles to convert this data into actionable insights. Marketing teams are unable to identify customer preferences. The operations team faces difficulty forecasting demand, and the leadership team has inadequate dashboards for decision-making. To overcome these challenges, ShopSmart plans to implement a Business Intelligence and Analytics system. The company also wants to use predictive and prescriptive analytics to optimize supply chain efficiency and improve customer experience.

- (a)** Identify the BI and analytics challenges faced by ShopSmart and suggest how data warehousing, dashboards, and visualization can address these issues. **07**
- (b)** Recommend how predictive, prescriptive, and web analytics can help ShopSmart improve marketing, operations, and customer experience. **07**

**OR**

- (a)** Explain how classification, clustering, and sentiment analysis can be applied to ShopSmart's customer data. **07**
- (b)** Suggest a BI-driven BPM framework for ShopSmart, including KPIs and balanced scorecard elements. **07**

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