Seat No. /Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA SEMESTER- III - EXAMINATION-SUMMER-2024

Subject Code: 2539303 **Date: 29/04/2024**
Subject Name: Business Intelligence & Analytics
Time: 02:30 PM TO 05:30 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.**

Q.1 Explain the following terms. **14**

1. Metadata
2. Digital Data
3. Web Analytics
4. Neural Network
5. Location Based Analytics
6. Data Warehouse
7. Text Analytics

Q.2 **(a)** Suppose "Indigo" a famous airline in India wants to diversify their business in different industry so how business intelligence's function, process and tools can be useful in terms of taking decision at different level? **07**

(b) Explain the Concept of OLTP & OLAP for Banking and Automobile Industry. **07**

OR

(b) Explain the difference between Data warehouse and DBMS in detail. **07**

Q.3 **(a)** Suppose Reliance Group wants to launch the healthcare product in India so what kind of Business Analytics' process and components that they should study for the accurate decision making for the business? Explain in detail. **07**

(b) Explain Concept of Bigdata Analytics for following industry **07**

1. Pharmaceutical
2. Financial Services

OR

Q.3 **(a)** Explain various Data Mining Method like Classification, Regression & Clustering with relevant example? **07**

(b) Suppose Flipkart and Amazon, a repute online retail marketplace companies wants to analyze their Product Reviews and Comments of the customer so how sentiment analysis can be useful to extract meaningful data? Explain the concept of Sentiment analysis in detail for above mentioned scenario. **07**

Q.4 **(a)** Explain the concept of Business Report & how the component of this business reports can be utilize in the real time problems solving of any industry. **07**

(b) Suppose Govt. of India wants to describe the demographic data of all the states through their census data so what kind of Visual Analytics can be perform on the census data? **07**

OR

Q.4 **(a)** Design and Explain the KPI & Dashboard for any E-Commerce firm to evaluate their Business Performance. **07**

(b) Explain the issues related to legality, privacy, and ethics in Business Intelligence and Analytics in detail. **07**

Q.5 Case Study on Walmart

With humble beginnings as a simple discount retailer, today, Walmart operates in 10,500 stores and clubs in 24 countries and eCommerce websites, employing around 2.2 million people around the globe. For the fiscal year ended January 31, 2021, Walmart's total revenue was $559 billion showing a growth of $35 billion with the expansion of the eCommerce sector. Walmart is a data-driven company that works on the principle of 'Everyday low cost' for its consumers. To achieve this goal, they heavily depend on the advances of their data science and analytics department for research and development, also known as Walmart Labs. Walmart is home to the world's largest private cloud, which can manage 2.5 petabytes of data every hour! To analyze this humongous amount of data, Walmart has created 'Data Café,' a state-of-the-art analytics hub located within its Bentonville, Arkansas headquarters. The Walmart Labs team heavily invests in building and managing technologies like cloud, data, DevOps, infrastructure, and security.

Walmart is experiencing massive digital growth as the world's largest retailer. Walmart has been leveraging Bigdata and advances in data science to build solutions to enhance, optimize and customize the shopping experience and serve their customers in a better way. At Walmart Labs, data scientists are focused on creating data-driven solutions that power the efficiency and effectiveness of complex supply chain management processes. Here are some of the applications of data science at Walmart:

i) Personalized Customer Shopping Experience

Walmart analyses customer preferences and shopping patterns to optimize the stocking and displaying of merchandise in their stores. Analysis of Big data also helps them understand new item sales, make decisions on discontinuing products, and the performance of brands.

ii) Order Sourcing and On-Time Delivery Promise

Millions of customers view items on Walmart.com, and Walmart provides each customer with a real-time estimated delivery date for the items purchased. Walmart runs a backend algorithm that estimates this based on the distance between the customer and the fulfillment center, inventory levels, and shipping methods

available. The supply chain management system determines the optimum fulfillment center based on distance and inventory levels for every order. It also has to decide on the shipping method to minimize transportation costs while meeting the promised delivery date.

iii) Packing Optimization

Also known as Box recommendation is a daily occurrence in the shipping of items in retail and eCommerce business. When items of an order or multiple orders for the same customer are ready for packing, Walmart has developed a recommender system that picks the best-sized box which holds all the ordered items with the least in-box space wastage within a fixed amount of time. This Bin Packing problem is a classic NP-Hard problem familiar to data scientists.

iv) Retail Price Optimization

Product prices are optimized based on a predictive model that determines the best price so that the users do not refuse to buy it based on price. The model carefully determines the optimal prices considering the customers' likelihood of purchasing the product and thinks the price will affect the customers' future buying patterns. The price for a product is determined according to your activity on the website, competitors' pricing, product availability, item preferences, order history, expected profit margin, and another factor.

Q.5	**(a)**	Explain the need and want of Walmart to create different analytical software and hub for their business decisions.	**07**
	(b)	Explain how predictive data analytics can be applied by the Walmart for accurate decisions.	**07**

OR

Q.5	**(a)**	Explain the Concept of Marketing Analytics for Walmart from above-mentioned case.	**07**
	(b)	Explain the concept of Operations & SCM analytics for Walmart from above-mentioned case.	**07**

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