Name: **Enrolment No:**	UPES UNIVERSITY OF TOMORROW

UPES

End Semester Examination, December 2024

Program: Integrated BBA MBA (Marketing) **Time: 03 hrs.**

Course Code: DSBA8005 **Max. Marks: 100**

COURSE NAME -- MARKETING ANALYTICS

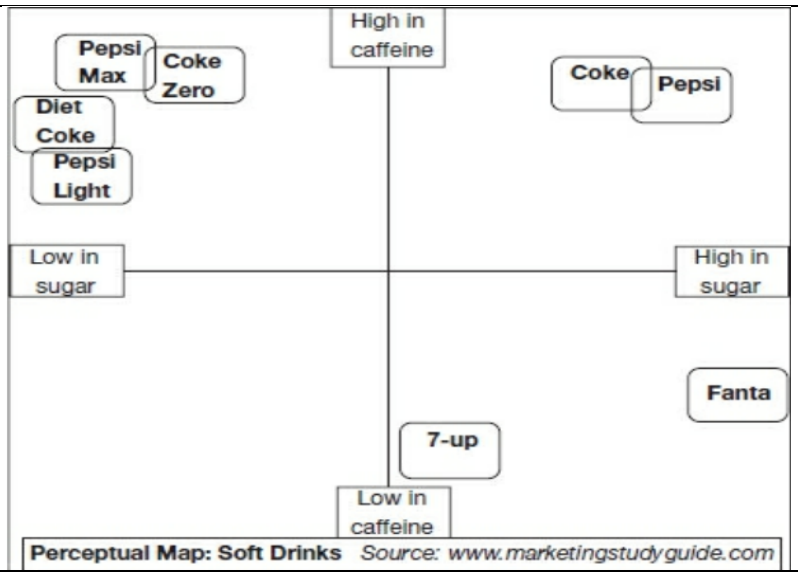
Instructions: Be precise and specific. Calculators are allowed

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	What does Customer Lifetime Value (CLV) measure? A) The total revenue generated by a customer over their entire relationship with a brand B) The number of customers a company acquires annually C) The average number of transactions a customer makes per year D) The profit margin on each product sold to a customer	**2**	**CO1**
Q 2	Which of these is a descriptive analytics metric? a) Predicting future sales based on past data b) Segmenting customers based on their buying behavior c) Tracking sales performance over a specific time period d) Calculating the impact of a campaign	**2**	**CO1**
Q 3	Which of these is a customer retention metric? a) Cost per Acquisition (CPA) b) Customer Lifetime Value (CLV) c) Bounce rate d) Conversion rate	**2**	**CO1**
Q 4	What is the primary goal of marketing analytics? a) To improve website design b) To measure the effectiveness of marketing campaigns c) To create content for social media d) To track customer service interactions	**2**	**CO1**

Q 5	Which of the following is an example of "predictive analytics" in marketing? A) Analyzing past campaign performance to improve future strategies B) Segmenting customers based on their purchasing behavior C) Using machine learning to forecast future sales based on current trends D) Conducting surveys to understand customer satisfaction	**2**	**CO1**
Q 6	In marketing analytics, what is the "Net Promoter Score" (NPS) used to measure? A) The percentage of repeat customers B) Customer satisfaction and the likelihood of recommending a company's products or services C) The impact of social media campaigns D) The average revenue generated by each customer	**2**	**CO1**
Q 7	Churn rate measures: a) The percentage of customers who stop doing business with a company b) The percentage of customers who make a purchase c) The cost of customer acquisition d) The percentage of website visitors who convert into leads	**2**	**CO1**
Q 8	Pat thought he had received the best deal on his new car. Shortly after the purchase, Pat started to notice certain disadvantages of his new car as he learned more about other cars available. Pat is experiencing _____. a) Post purchase culture b) Selective perception c) Post purchase dissonance d) Purchase decision e) Information evaluation	**2**	**CO1**
Q 9	When analyzing a customer's journey, which of the following stages would typically come last in the funnel? a) Awareness b) Consideration c) Purchase d) Retention	**2**	**CO1**
Q 10	Which of the following metrics would be most useful for evaluating the effectiveness of an email marketing campaign? a) Bounce rate b) Open rate c) CTR d) All of the above	**2**	**CO1**

SECTION B **4Qx5M= 20 Marks**			
			CO
Q11	Briefly explain net promoter score (NPS) and customer lifetime value (CLV) and its importance	**5**	**CO2**
Q12	Write a short note on importance of customer retention	**5**	**CO2**
Q13	Define Search Engine Optimization (SEO) and differentiate it from SEM	**5**	**CO2**
Q14	Explain the significance of unique page views with an example. How does it differ from total page views?	**5**	**CO2**
SECTION-C **3Qx10M=30 Marks**			
			CO
Q15	a) You are running a digital ad campaign, and the results are as follows: • Total Impressions: 500,000 • Total Clicks: 20,000 • Total Cost of the Campaign: $10,000 What is the Click-Through Rate (CTR) of the campaign? b) A company uses Facebook Ads and records the following results: Total Spend: $4,000 Total Impressions: 2,000,000 Total Clicks: 50,000 What is the Cost Per Click (CPC)?	**10**	**CO3**
Q16	**Answer the following in brief:** A company runs an online ad campaign that attracts 5,000 visitors to its landing page. Out of these visitors, 400 completed the desired action by making a purchase. Calculate the conversion rate for the campaign. What recommendations would you make based on the conversion rate to improve the campaign's performance?	**10**	**CO3**
Q17	Explain the concept of perceptual mapping. How does it help businesses visualize consumer perceptions of different brands or products. Moreover, interpret the following PM	**10**	**CO3**

			
SECTION-D **2Qx15M= 30 Marks**			
			CO
17	What is conjoint analysis? Explain how do we calculate the market share with the help of conjoint analysis using example from any sector you like except automobile industry. Choose utility values as per your wish. (10) Solve following numerical (5 Marks) A conjoint analysis study was conducted to evaluate customer preferences for a new smartphone. Three attributes were tested: **Screen Size** (5.0", 5.5", 6.0"), **Battery Life** (10 hours, 12 hours, 15 hours), and **Price** ($500, $600, $700). After analyzing the data, the utility scores for each level of each attribute are as follows: • **Screen Size:** o 5.0" = 1.2 o 5.5" = 2.5 o 6.0" = 3.0 o 6.5” = 3.2 • **Battery Life:** o 10 hours = 1.0 o 12 hours = 2.0 o 15 hours = 3.5 • **Price:** o $500 = 3.0 o $600 = 2.0 o $700 = 0.5 Which product combination would a customer most prefer based on the highest total utility? Explain	**15**	**CO4**

	A) 6.5, 10 hours, $500 **B)** 5.0", 12 hours, $600 **C)** 5.5", 15 hours, $700 **D)** 6.0", 12 hours, $600 **E)** 5.0", 15 hours, $700 **F)** 5.5", 12 hours, $600		
18.	**Customer Segmentation using Cluster Analysis for E-commerce Marketing** **Background:** XYZ Electronics is an e-commerce company that sells a wide range of electronic products, from smartphones and laptops to home appliances and gaming consoles. Despite offering competitive prices and an extensive product catalog, the company has seen a plateau in sales growth and struggles with targeting the right customer segments for personalized marketing campaigns. XYZ Electronics' marketing team has been using broad, one-size-fits-all advertising campaigns with little success. The team realizes that customers' purchasing behaviors and preferences vary significantly, and therefore, there is a need to better understand these differences to tailor marketing efforts effectively. **Problem:** The marketing department at XYZ Electronics is tasked with identifying distinct customer groups that share similar purchasing behaviors and preferences. By doing so, the company hopes to: • Increase conversion rates through targeted campaigns • Offer personalized discounts and product recommendations • Improve customer retention and loyalty **Objective :** To apply **cluster analysis**, a machine learning technique, to group customers based on their purchasing behavior and demographic characteristics. This segmentation will allow XYZ Electronics to create personalized marketing strategies, offering the right products to the right **Approach :** The marketing team decides to use **K-means clustering**, a popular unsupervised machine learning algorithm for customer segmentation. They use a dataset that includes the following customer features: • **Demographic Information**: Age, Gender, and Location	**15**	**CO4**

	• **Purchasing Behavior**: Frequency of Purchases, Average Transaction Value, and Product Categories Purchased (e.g., Smartphones, Laptops, etc.) • **Website Interaction Data**: Time spent on the website, pages viewed, and click-through rate on email campaigns. **Data Preprocessing:** 1. **Cleaning the Data**: The data is cleaned to handle missing values and remove outliers that could skew the results. Customers with incomplete purchase history are excluded. 2. **Normalization**: Since the variables are measured on different scales (e.g., age in years vs. transaction values in dollars), normalization is performed to scale the data between 0 and 1. 3. **Feature Selection**: The team selects key features related to purchasing behavior (transaction frequency, average purchase value, and product categories) for the clustering process. **Why is cluster analysis a good choice for customer segmentation in this case?** **What challenges might arise when determining the optimal number of clusters?** **How might the results of this cluster analysis be used to improve customer retention strategies?**		