GL BAJAJ
Institute of Management & Research
Greater Noida
FIND YOUR SPARK

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POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
END TERM EXAMINATION (TERM -IV)

Subject Name: Marketing Analytics	Time: **02.00 hrs**
Sub. Code: PGM43	Max Marks: **40**

Note: All questions are compulsory. Section A carries 12 marks: 6 questions of 2 marks each, Section B carries 18 marks having 3 questions (with internal choice question in each) of 6 marks each and Section C carries 10 marks one Case Study having 2 questions of 5 marks each.

Kindly write the all the course outcomes as per your TLEP in the box given below:

CO#	Course Outcomes	Bloom's Taxonomy
CO-1	Understand the evolution of marketing analytics and explain key marketing metrics (ROI, ROAS, CLV, CAC) and ethical data practices in digital environments.	Understand- L-2
CO-2	Apply tools like Google Analytics 4, Tableau, and Power BI to build marketing funnels, dashboards, and real-time reports from diverse data sources.	Apply- L-3
CO-3	Analyse marketing datasets using statistical methods such as A/B testing, regression, clustering, and predictive modelling to generate actionable marketing insights.	Analyze- L-4
CO-4	Evaluate digital and social media campaigns through web analytics, social listening, attribution models, and influencer performance metrics.	Evaluate- L-5
CO-5	Create data-driven marketing strategies by segmenting customers, designing targeted campaigns, and communicating insights through effective data storytelling.	Create- L-6
CO-6	Design sustainable and ethical AI-powered marketing strategies by integrating carbon tracking, bias mitigation, and ethical decision-making frameworks.	Create- L-6

SECTION - A		
Attempt all questions. All questions are compulsory.		2×6 = 12 Marks
Questions	**CO**	**Bloom's Level**
Q. 1: (A). Define Return on Investment (ROI) and explain its importance in marketing decision-making.	CO1	L2
Q. 1: (B). What is Customer Lifetime Value (CLV)? How does it help in prioritizing customers?	CO1	L2
Q. 1: (C). Differentiate between CRM data and transactional data with one example each.	CO1	L2
Q. 1: (D). Define data cleaning. Mention any two common data quality issues faced in marketing analytics.	CO2	L2
Q. 1: (E). What do you understand by data storytelling? Give one example of its use in marketing presentations.	CO2	L2

Q. 1: (F). A start-up wants to track users from Instagram ad click → website visit → sign-up. Suggest a simple event/goal setup in GA4 to monitor this funnel.	CO2	L3

SECTION – B

All questions are compulsory (Each question has an internal choice. Attempt anyone (either A or B) from the internal choice) **6 x 3 = 18 Marks**

Questions	CO	Bloom's Level
Q. 2: Paytm is a B2C financial services app. The company runs performance ads on Meta (Instagram/Facebook) and Google Search. Data (one month): • Meta Ads: 1,20,000 impressions, 4,800 clicks, 1,000 app installs • Google Search Ads: 40,000 impressions, 3,200 clicks, 900 app installs **Q. 2: (A).** Management wants a simple dashboard and funnel to monitor ad performance and conversion from click to app install. i. Draw or describe a basic funnel (with stages) from impression to app install for this campaign. ii. Calculate the click-through rate (CTR) and install rate (installs/clicks) for Meta Ads and Google Search Ads. Show working. iii. Based on your calculations, interpret which channel is more efficient and why. **Or** **Q. 2: (B).** The CEO asks you to build a combined report to review ad performance weekly. i. List any four key metrics you would display on the main page of the dashboard. ii. Suggest two visuals (e.g., funnel chart, line graph) and what each will show. iii. Explain briefly how blending/integration of data from Meta Ads and Google Ads in one view can improve decision-making for budget allocation.	CO2	L3 & L4
Q. 3: Shoppers Stop Limited sends promotional emails to its loyal customers for a weekend sale. • Total emails sent: 100,000 • Version A (old subject line): 50,500 emails, 2,250 opens • Version B (new subject line): 49,500 emails, 2,875 opens Later, the company wants to build a predictive model to identify customers likely to respond to such offers based on: past purchases, category preference, and previous email interactions. **Q. 3: (A).** Compute the open rates for Version A and Version B. ii. State which version is better and by how many percentage points. iii. Frame the null hypothesis and alternative hypothesis to test if Version B is significantly better than Version A. iv. Name the type of statistical test/approach you would use (no formula needed) and mention one more variable you might include (e.g., device type or time of sending) to refine analysis.	CO3	L3 & L4
Or **Q. 3: (B).** Amazon now wants to develop a churn prediction model for customers who stop buying e-books. It has data on: • Number of purchases in last 6 months • Time since last purchase • Preferred categories (e.g., fiction, business) • Number of emails opened/clicked • Use of mobile app vs. website	CO3	L4 & L5

i. Outline the steps to build a churn prediction model (choice of model, training, validation, use). ii. Identify any three variables that may be strong indicators of churn and explain why. iii. Suggest any two interventions the company can design for customers predicted to have high churn risk. **Q. 4:** TaxiforSure, a cab-hailing service, runs a two-week multi-channel digital campaign to promote airport rides. Data snapshot: • Search Ads: 50,000 impressions, 2,500 clicks, 450 app ride bookings • Social Ads (Instagram/Facebook): 1,10,000 impressions, 6,000 clicks, 520 app ride bookings • Display Ads (news portals): 1,50,000 impressions, 3,000 clicks, 150 app ride bookings Total campaign cost: • Search Ads: ₹1,20,000 • Social Ads: ₹1,50,000 • Display Ads: ₹90,000 Average revenue per ride: ₹600. **Q. 4: (A).** For each channel, calculate: • Conversion rate (bookings/clicks) • Cost per booking (total spend/bookings) ii. Based on your calculations, evaluate the performance of each channel. iii. Recommend how you would reallocate budget in the next campaign and give one reason for each adjustment.	CO4	L4 & L5

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Or

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Q. 4: (B). The marketing team had been using last-click attribution, but you observe that many users: • First discover UrbanRide through Display Ads, • Then see Social Ads, • Finally convert after clicking a Search Ad. i. Explain why last-click attribution can be misleading in this situation. ii. Describe how a position-based or data-driven attribution model would distribute credit more fairly in this journey. iii. Suggest one experiment you would run on each of the three channels (Search, Social, Display) to improve overall ride bookings and long-term app engagement.	CO4	L3 & L5

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SECTION - C

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Read the case and answer the questions   **5×02 = 10 Marks**

Questions	CO	Bloom's Level
Q. 5: Case Study: Adya Organics is an online brand selling healthy and natural food products: A2 Cow Ghee, Woodpressed oils, Date Palm Jaggery and Raw Honey. Data sources include: • GA4 (traffic sources, events, conversions) • CRM (purchase history, region, product preferences) • Social media (Instagram and YouTube engagement) • Email campaign reports Adya Organics has identified three broad customer groups based on initial analysis:		

1. Curious Visitors – Visit the site after a social media post, browse but rarely buy. 2. Health Conscious Families – Buy healthy products regularly. 3. Organic Advocates – High repeat purchases, regularly share Adya Organics content and reviews. The management wants to: • Design separate campaigns for each segment. • Introduce an AI recommendation engine that suggests healthy and natural bundles ("good for gut health", "heart healthy"). • Show a small "carbon saved" indicator at checkout (e.g., "Your order saved 3.2 kg CO_2 compared to conventional products"). • Ensure that AI and data use are ethical, transparent, and non-discriminatory. **Questions:** **Q. 5: (A).** Using the given description, suggest one practical criterion each to clearly define the three segments: Curious Visitors, Health Conscious Families, and Organic Advocates (e.g., frequency of purchase, product mix, engagement level). ii. For each segment, write one campaign idea (message and offer) that uses Adya Organics data (e.g., previous products viewed, categories purchased, interaction with wellness content). iii. Mention any two charts/visuals you would include in a management dashboard to monitor the performance of these segment-specific campaigns. Briefly state what each visual will show. **Q. 5: (B).** Identify any two risks or biases that may arise from using an AI recommendation engine (for example, favouring high-spending customers or under-recommending offers to some regions). For each, state how you would detect and reduce that bias. ii. Suggest two concrete data privacy/consent practices Adya Organics should follow when using GA4, CRM, and AI tools (e.g., type of consent notice, data minimisation, opt-out options).	CO5 CO6	L5 & L6 L5 & L6

Kindly fill the total marks allocated to each COs in the table below:

COs	Question No.	Marks Allocated
CO1	1a, 1b, 1c	6 marks
CO2	1d, 1e, 1f, 2a, 2b	12 marks
CO3	3a, 3b	6 marks
CO4	4a, 4b	6 marks
CO5	5a	5 marks
CO6	5b	5 marks

(Please ensure the conformity of the CO wise marks allocation as per your TLEP)

Blooms Taxonomy Levels given below for your ready reference:
L1= Remembering
L2= Understanding
L3= Apply
L4= Analyze
L5= Evaluate
L6= Create