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Institute of Management & Research
Greater Noida
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POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
END TERM EXAMINATION (TERM -IV)

Subject Name: **Social Media Data Analytics**	Time: **02.00 hrs**
Sub. Code: **PGIT43**	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:

S. No.	Course Outcomes (COs)	Bloom's Taxonomy Level
CO1	To provide a foundational understanding of Social Media and Web Analytics, including key concepts, tools, and platforms.	L2
CO2	To develop the ability to collect, analyze, and interpret social and web data for informed business decision-making.	L3
CO3	To equip students with practical skills in using analytics tools such as Google Analytics for monitoring and improving digital performance.	L3
CO4	To enable students to evaluate digital campaigns, understand audience behavior, and apply insights to real-world marketing strategies.	L4

SECTION - A		
Attempt all questions. All questions are compulsory. **2×6 = 12 Marks**		
Questions	**CO**	**Bloom's Level**
Q. 1: (A). What is Social Media Analytics (SMA)? **Q. 1: (B).** What is Web Analytics? **Q. 1: (C).** State one advantage and one limitation of web analytics. **Q. 1: (D).** What do you mean by "influencers" in a social network? **Q. 1: (E).** Explain Bounce Rate. **Q. 1: (F).** Write limitation of heuristic evaluations	CO1	L2
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: (A). Define page hits, page views, visits, and unique views. Explain each metric in detail and describe how they help in understanding user behavior on a website. **Or** **Q. 2: (B).** What are Key Performance Indicators (KPIs) in web analytics? Explain the need for Web KPIs and describe their characteristics, perspectives, and uses in evaluating website effectiveness. (internal choices with two questions corresponding to the same CO)	CO2	L3

Questions	CO	Bloom's Level
Q. 3: (A). Explain the concept of web and social media engagement analysis. Discuss the key engagement metrics used to measure user interaction across various platforms. **Or** **Q. 3: (B).** Define Social Network Analysis (SNA). Explain how SNA can be applied to platforms like Instagram or YouTube to study user behavior, influence patterns, and content reach.	CO3	L3
Q. 4: (A). Explain the concept of heuristic evaluation for websites. Discuss the major steps involved in conducting a heuristic evaluation and highlight its key benefits for improving website usability **Or** **Q. 4: (B).** Discuss the concept of website traffic analysis. Explain how traffic trends are measured and interpreted, and describe how organizations use these insights for performance optimization. (internal choices with two questions corresponding to the same CO)	CO4	L3

SECTION - C

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

Questions	CO	Bloom's Level
Q. 5: Case Study: **Case Study: Scaling User Acquisition for FitTrack – A Fitness App's Multi-Platform Growth Campaign** **Company Background** FitTrack is a health tech startup offering a mobile app for personalized workout tracking, nutrition logging, and virtual coaching, aimed at busy professionals aged 25-45 seeking convenient fitness solutions. Launched in 2023, the app has 100K downloads but struggled with user retention (churn rate of 40% monthly) and low organic growth in a crowded market dominated by apps like MyFitnessPal. On December 1, 2025, FitTrack initiated a three-month "Fit in 30 Days" challenge campaign to acquire 50K new users, improve retention by 15%, and diversify traffic sources. With a $75K budget, the campaign targeted Instagram, TikTok, and YouTube, running through February 28, 2026, leveraging the New Year's resolution surge. **Campaign Goals and Objectives** Key objectives included: • **Acquisition**: Secure 50K app downloads and 200K total engagements (views, shares, comments). • **Retention and Engagement**: Reduce churn via interactive challenges (daily 30-minute workouts shared with #FitIn30Days) and build community through live sessions. • **Traffic Balance**: Shift from 70% organic (app store SEO) to a 50/50 split with paid traffic to sustain long-term growth. • **Monetization**: Increase premium subscriptions (in-app upsell) by 20%, aiming for a 4:1 ROI. Success was benchmarked against KPIs like cost per acquisition (CPA under $1.50) and lifetime value (LTV) uplift, using a funnel model from awareness to conversion. **Implementation Technology and Strategy** The campaign employed an integrated tech stack for seamless execution: • **Social Media Platforms**: o **Instagram and TikTok**: Bite-sized challenge videos (15-60	CO4	L3

seconds) featuring user testimonials and AR filters for workout poses, promoted via 15 nano-influencers (1K-10K followers) in fitness niches.
  - o **YouTube**: In-depth live streams and Shorts series on progress tracking, with end-screen CTAs linking to app downloads.
- **Paid Advertising**: $30K allocated to Google AdWords for app install campaigns, bidding on keywords such as "quick home workouts" and "30-day fitness challenge app." Remarketing targeted past website visitors with dynamic ads showing personalized workout previews.
- **Analytics and Optimization Tools**:
  - o **Google Analytics (GA4)**: Integrated with Firebase for app-specific tracking, monitoring events like "challenge_join" and "subscription_start." Custom reports segmented traffic by source and device.
  - o **Google Website Optimizer (emulated via GA4 Experiments)**: Conducted multivariate tests on the app's landing page (fittrack.com/challenge), pitting a gamified quiz variant against a straightforward sign-up form to boost conversion rates.
- **Social Network Analysis (SNA)**: Tools like Gephi analyzed TikTok and Instagram networks, identifying "broker" nodes (influencers bridging fitness and wellness communities) with high betweenness centrality. On YouTube, SNA mapped comment subgraphs to detect viral discussion clusters around motivation topics.

The team used Segment for data unification across platforms, Amplitude for cohort analysis, and Buffer for cross-posting. Mobile-first implementation ensured 90% of interactions were app-optimized, with push notifications triggered by UGC uploads.

Measuring and Analyzing the Campaign

Weekly dashboards in GA4 and Amplitude provided real-time insights, with data aggregated in Tableau for visualizations. Core metrics highlighted:

Metric Category	Key KPIs	Baseline (Pre-Campaign)	Actual Results (Mid-Campaign, Jan 31, 2026)	Variance
Engagement	Impressions Engagements (Views, Shares, UGC Posts)	300K/month 15K/month	450K total 180K total	+50% +1100%
Traffic Sources	Organic Traffic (% of total sessions) Paid Traffic (% of total sessions)	70% 15%	52% (social + app store) 40% (AdWords)	-18% +25%
Acquisition & Retention	App Downloads Churn Rate Premium Subscriptions	10K/month 40% 5K/quarter	35K total 32% 6.2K total	+250% -20% +24%
SNA Insights (TikTok/Instagram)	Betweenness Centrality (Top Influencers) Modularity (Community Clusters)	N/A N/A	0.45 (brokers amplified 30% of shares) 0.72 (strong fitness echo chambers)	N/A

YouTube-Specific	Watch Time Subscriber Growth	3.2 min/session 2K/quarter	5.5 min/session 12K total	+72% +500%		

Web and Social Media Engagement Analysis: GA4 attribution models (data-driven) revealed paid traffic's higher CPA ($1.20 vs. organic's $0.80), but organic UGC drove 60% of retention via referral loops. Engagement peaked in January (post-holidays), correlating with SNA-identified clusters where modularity scores indicated self-reinforcing motivation networks.

Evaluation of Outcomes: By mid-campaign, downloads hit 70% of target (35K), with LTV rising 18% from repeat challenges. ROI stood at 3.8:1 ($285K projected revenue from $75K spend). Sentiment analysis (via MonkeyLearn) showed 82% positive feedback, though qualitative reviews flagged app glitches in live integrations.

Limitations, Performance Concerns, and Privacy Issues

- **Limitations**: GA4's privacy sandbox (enhanced in 2025) anonymized 12% of cross-device tracking, skewing retention metrics and underestimating organic contributions. SNA on TikTok was hampered by API rate limits, limiting analysis to sampled networks (10K nodes max).
- **Performance Concerns**: AdWords quality scores dipped to 6/10 due to ad relevance mismatches, inflating CPC to $2.10 and causing 15% budget overrun. A/B tests yielded only 4% uplift in conversions (quiz variant won), attributed to high mobile latency (average load time 3.5s), which increased bounce rates by 8% on slower connections.
- **Privacy Issues**: iOS 18's App Tracking Transparency reduced retargeting effectiveness by 25%, with 7% user opt-outs. UGC from challenges raised data consent challenges under evolving EU AI Act guidelines, prompting manual moderation of 2K posts. Platform algorithms (e.g., TikTok's For You Page) unpredictably suppressed 20% of organic reach amid shadowbans on health claims.

The campaign accelerated growth but underscored tech debt in privacy-compliant scaling. Post-campaign, FitTrack plans server-side tagging and influencer vetting to refine performance.

Questions:

Q. 5: (A). Examine the campaign results using the provided KPI table. Which objectives were achieved, partially achieved, or missed? Provide data-backed reasoning for each.

Q. 5: (B). Evaluate the effectiveness of FitTrack's use of GA4, Firebase, Segment, and Amplitude in driving insights for acquisition, retention, and monetization. What were the strengths and limitations of these tools?

Kindly fill the total marks allocated to each CO's in the table below:

COs	Question No.	Marks Allocated
CO1	Q1	12
CO2	Q2	6
CO3	Q3	6
CO4	Q4, Q5	16

(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