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**BRAINWARE UNIVERSITY**

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Term End Examination 2025-2026**Programme – M.Tech.(CSE)-DS-2025****Course Name – Social Media and Web Analytics****Course Code - MTD27504 (T)****(Semester II)****Full Marks : 40****Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 10=10

1. Choose the correct alternative from the following :

- (i) Key Performance Indicators (KPIs) represent
 - a) Encryption standards
 - b) Quantifiable measures of performance
 - c) Network configurations
 - d) Programming rules
- (ii) Web analytics directly supports
 - a) Compiler design
 - b) File system management
 - c) Digital marketing strategies
 - d) Network security protocols
- (iii) Web scraping primarily enables
 - a) Automated data collection from web pages
 - b) Website hosting
 - c) Data encryption
 - d) Network optimization
- (iv) Data preprocessing ensures
 - a) Improved data quality and consistency
 - b) Faster network speed
 - c) Enhanced hardware performance
 - d) Reduced server cost
- (v) API-based data collection reduces
 - a) Manual intervention
 - b) Data accuracy
 - c) Data reliability
 - d) Ethical compliance
- (vi) API response formats commonly include
 - a) Binary code
 - b) JSON or XML
 - c) Executable files
 - d) SQL tables
- (vii) Social graph analysis enables
 - a) Understanding information diffusion
 - b) Website hosting
 - c) File compression
 - d) Database normalization
- (viii) A sudden drop in website traffic is observed after a marketing campaign. Which analytical approach best helps identify the root cause?
 - a) Descriptive analytics
 - b) Diagnostic analytics
 - c) Prescriptive analytics
 - d) Real-time analytics

- (ix) If two campaigns have similar reach but different conversion rates, which analytical inference is most appropriate?
- a) Both campaigns attracted identical audiences b) Audience targeting effectiveness differs
- c) Website usability caused equal impact d) Data collection bias is present
- (x) When influencer posts generate high reach but low engagement, what is the most reasonable analytical conclusion?
- a) Influencer credibility is low b) Content relevance to audience is weak
- c) Platform algorithm is malfunctioning d) API data extraction failed

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the significance of web scraping in data collection. (3)
3. Find top trending hashtags. (3)
4. Apply API-based data collection for extracting Twitter data. (3)
5. Illustrate dashboard creation using social media analytics data. (3)
6. Engagement Growth Rate A social media account had 1500 followers initially. After marketing: Week 1 growth = 12% Week 2 growth = 10% Week 3 growth = 8% Calculate total followers after 3 weeks. Evaluate overall growth percentage. (3)

OR

AI-Based Influence Score Model Define influence score: $I = 0.4 E + 0.35 R + 0.25 S$ (3)
 $I = 0.4E + 0.35R + 0.25S$ Where: Engagement $E = 80$ Reach $R = 120$ Shareability $S = 60$ Calculate influence score. Propose improved formula considering virality factor $V = 50$.

Group-C

(Long Answer Type Questions)

5 x 3=15

7. Apply influencer analysis techniques to support marketing decisions. (5)
8. Develop a preprocessing workflow for handling unstructured social media text data. (5)
9. You are given social media comments: ["Great product!", "Worst experience ever", "Amazing service", "Not satisfied", "Loved it", "Terrible support"] Perform: Text preprocessing Sentiment classification using ML Calculate percentage of positive vs negative sentiment. (5)

OR

Given social posts: "#AI #ML" "#AI #Data" "#ML #Python" "#Data #AI" Build hashtag network Find most connected hashtag and Measure similarity between posts. (5)

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