Q.6		Attempt any two:						
	i.	Explain various techniques used for visualizing social network data.	**5**	2	2	5	1
	ii.	Explain random graphs with example.	**5**	2	2	5	1
	iii.	Explain the concept of link analysis and its application in social media analytics.	**5**	2	2	5	1

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Total No. of Questions: 6 *Total No. of Printed Pages:4*

Enrollment No.....

Faculty of Engineering
End Sem Examination Dec 2024
CB3EL06 / CB3EL11 Advanced Social, Text & Media

Programme: B.Tech. Branch/Specialisation: CSBS

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	**BL**	**PO**	**CO**	**PSO**
Q.1	i.	What is the primary goal of text mining? (a) To convert unstructured text into structured data (b) To visualize data (c) To analyse numerical data (d) To create graphical user interfaces	**1**	1	1	1	1
	ii.	Which of these is a probabilistic model used for information extraction in text mining? (a) Naive Bayes (b) Decision Tree (c) SVM (Support Vector Machine) (d) Linear Regression	**1**	1	1	1	1
	iii.	Which of the following is NOT a key element of content analysis? (a) Coding data (b) Topic detection (c) Summarizing video data (d) Sentiment analysis	**1**	1	1	2	1
	iv.	Natural Language Processing (NLP) is used primarily to: (a) Manage database systems (b) Perform mathematical calculations (c) Interpret and analyse human language (d) Encrypt sensitive information	**1**	1	1	2	1

v.	What is the main goal of web analytics? (a) To visualize business models (b) To track and analyse user behaviour on websites (c) To monitor network security (d) To design website layouts	**1**	1	1	3	1
vi.	Clickstream analysis is useful for: (a) Tracking the sequence of pages visited by a user (b) Identifying website vulnerabilities (c) Creating graphical interfaces (d) Encrypting website data	**1**	1	1	3	1
vii.	Social network analysis mainly focuses on: (a) Studying user interface design (b) Understanding connections between individuals and groups (c) Improving website performance (d) Data encryption	**1**	1	1	4	1
viii.	Matrices are used in social network analysis to: (a) Visualize relationships between entities (b) Perform sentiment analysis (c) Improve network security (d) Implement SEO strategies	**1**	1	1	4	1
ix.	Information visualization in social media analytics helps to: (a) Store large amounts of data (b) Enhance user privacy (c) Simplify data interpretation by representing it visually (d) Increase network speed	**1**	1	1	5	1
x.	Random graphs are primarily used to: (a) Model random interactions within a network (b) Sort data (c) Protect data from unauthorized access (d) Visualize historical data trends	**1**	1	1	5	1
Q.2	i. Describe any three applications of text mining.	**3**	1	2	1	1

	ii. Discuss the various pre-processing techniques in text mining. Explain their importance of each technique in preparing text data for analysis.	**7**	2	4	1	1
OR	iii. Explain the core operations involved in text mining and discuss how each operation contributes to extracting meaningful information from text.	**7**	3	4	1	1
Q.3	i. Define Natural Language Processing (NLP) and mention one of its common applications.	**4**	1	1	2	1
	ii. Explain the process and significance of sentiment analysis in text mining.	**6**	2	2	2	1
OR	iii. Describe the steps involved in clustering and topic detection for large datasets. Discuss how these methods are applied in natural language processing.	**6**	3	4	2	1
Q.4	i. What is the significance of web traffic models in predicting user behaviour on websites?	**3**	1	2	3	1
	ii. Discuss the various tools and techniques used in web analytics, including clickstream analysis, A/B testing, and online surveys. Explain how each tool contributes to understanding user behaviour and improving website performance.	**7**	3	4	3	1
OR	iii. Explain the process of web crawling and indexing and discuss their importance in search engine optimization.	**7**	3	2	3	1
Q.5	i. Describe the basic measures used in social network analysis for evaluating individuals and networks.	**4**	1	2	4	1
	ii. Explain how graphs and matrices are used to represent social networks. Discuss the importance of these representations in social media analytics.	**6**	3	4	4	1
OR	iii. Discuss how centrality, degree, clustering coefficient measures helps in understanding the structure and influence within social networks.	**6**	2	4	4	1

Marking Scheme
CB3EL11 Advanced Social, Text and Media Analytics

Q.1 i) What is the primary goal of text mining? **1**

A) To convert unstructured text into structured data

ii) Which of these is a probabilistic model used for information extraction in text mining? **1**

A) Naive Bayes

iii) Which of the following is NOT a key element of content analysis? **1**

C) Summarizing video data

iv) Natural Language Processing (NLP) is used primarily to: **1**

C) Interpret and analyse human language

v) What is the main goal of web analytics? **1**

B) To track and analyse user behaviour on websites

vi) Clickstream analysis is useful for: **1**

A) **Tracking the sequence of pages visited by a user**

vii) Social network analysis mainly focuses on: **1**

B) Understanding connections between individuals and groups

viii) Matrices are used in social network analysis to: **1**

A) Visualize relationships between entities

ix) Information visualization in social media analytics helps to: **1**

C) Simplify data interpretation by representing it visually

x) Random graphs are primarily used to: **1**

A) Model random interactions within a network

Q.2 i. Describe any three applications of text mining.**- 1 Mark for each application** **3**

ii. Discuss the various pre-processing techniques in text mining. Explain their importance of each technique in preparing text data for analysis **7**
explanation of tokenization, stop-word removal, stemming, and lemmatization with their importance - 7 Marks

iii. Explain the core operations involved in text mining and discuss how each operation contributes to extracting meaningful information from text. **7**
the core operations involved in text mining-**4 Marks**
Each operation contribution in extracting meaningful information from text- **3 Marks**

Q.3 i. Define Natural Language Processing (NLP) and mention some of its common applications **4**
NLP Definition – **2 Marks**

ii. Explain the process and significance of sentiment analysis in text mining- **6 Marks** **6**

OR iii. Describe the steps involved in clustering and topic detection for large datasets. Discuss how these methods are applied in natural language processing **6**
the steps involved in clustering and topic detection-**4 Marks**
Application of these methods in NLP-**2 Marks**

Q.4 i. What is the significance of web traffic models in predicting user behaviour on websites?- **3 Marks** **3**

ii. Discuss the various tools and techniques used in web analytics, including clickstream analysis, A/B testing, and online surveys. Explain how each tool contributes to understanding user behaviour and improving website performance. **7**

		tools and techniques used in web analytics, including clickstream analysis, A/B testing, and online surveys-**5 Marks** each tool contribution-**2 Marks**	
OR	iii.	Explain the process of web crawling and indexing and discuss their importance in search engine optimization.- **7 Marks**	**7**
Q.5	i.	Describe the basic measures used in social network analysis for evaluating individuals and networks.-**4 Marks**	**4**
	ii.	Explain how graphs and matrices are used to represent social networks. Discuss the importance of these representations in social media analytics. How graphs and matrices are used to represent social networks- **3 Marks** importance of these representations-**3 Marks**	**6**
OR	iii.	Discuss how centrality, degree, clustering coefficient measures helps in understanding the structure and influence within social networks.	**6**
Q.6		Attempt any two:	
	i.	Explain various techniques used for visualizing social network data (any 5) - **1 Mark for each**	**5**
	ii.	Explain random graphs with example. – **5 Marks**	**5**
	iii.	Explain the concept of link analysis and its application in social media analytics- **5 Marks**	**5**

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