

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.**
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

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| 1 | Attempt any FOUR | [20] |
| a | Discuss various text preprocessing techniques and their relevance in text mining ? | 5 |
| b | Explain the HMM model in detail and state its limitations. | 5 |
| c | Define web spamming and differentiate between content spam and link spam. | 5 |
| d | Explain the concepts of "influence" and "homophily" in the context of social networks. | 5 |
| e | Define opinion mining and explain the problems of opinion mining. | 5 |
| 2 | a Discuss various text preprocessing techniques and their relevance in text mining and text extraction tasks? Justify the answer with examples. | [10] |
| b | What is opinion spam? Explain any one opinion spam detection technique in detail. | [10] |
| 3 | a Explain with block diagram classical recommendation algorithms for social media . | [10] |
| b | Discuss the techniques used for information extraction from unstructured text and their limitations. | [10] |
| 4 | a What is N-gram modeling and its application in text mining? Explain unigrams, bigrams, and trigrams with examples. | [10] |
| b | Explain the concepts of session analysis and visitor analysis in web usage mining. What types of insights can be gained from each of these analyses? | [10] |
| 5 | a Differentiate between a standard web search engine and a meta-search engine. Explain the working of meta search engines. | [10] |
| b | Explain decision tree classifier in detail. | [10] |
| 6 | a Explain the concept of Latent Semantic Indexing (LSI). How does it attempt to overcome the limitations of traditional keyword-based search? | [10] |
| b | Explain the concept of Named Entity Recognition (NER). Discuss the different categories of named entities and the challenges involved in accurately identifying them in text. | [10] |
