



QP CODE: 25024928



Reg No : .....

Name : .....

**M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025**

**Fourth Semester**

M Sc Artificial Intelligence

**ELECTIVE - AI800406 - INFORMATION RETRIEVAL AND MANAGEMENT**

2020 ADMISSION ONWARDS

37BC5406

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

*Answer any **eight** questions.*

*Weight 1 each.*

1. What are search engine processes?
2. How to introduce AI into IR systems?
3. Discuss the techniques or data structures commonly used to handle sparse vectors efficiently in retrieval systems.
4. What is query expansion and how does it contribute to improving information retrieval?
5. What is search engine optimization (SEO)?
6. Writeshort note on meta crawlers.
7. Discuss the techniques used in automatic text summarization and their applications in generating informative summaries of documents.
8. Discuss the role of machine translation in facilitating cross-lingual retrieval and its impact on retrieval effectiveness.
9. Explain differnt Text Mining Methods.
10. What are the key differences between agglomerative clustering and k-means clustering algorithms in the context of unsupervised machine learning?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

*Answer any **six** questions.*

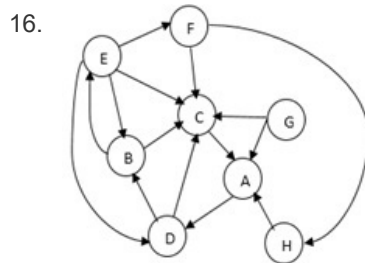
*Weight 2 each.*

11. What are the key ways in which the web has influenced the scalability and performance requirements of IR systems?
12. Write short note on Index creation.





13. Explain the concept of term weighting in information retrieval and its importance in improving retrieval performance. Compare and contrast the TF-IDF weighting scheme with other term weighting approaches.
14. What are the key steps involved in preprocessing text for information retrieval? Discuss the importance of techniques such as tokenization, stop word removal, stemming, and normalization in improving retrieval accuracy.
15. Draw bow-tie structure of the Web?



Compute 2 iterations of HITS algorithm on this network.

17. What are the advantages of nearest neighbour algorithm?
18. Discuss the role of EM in query expansion for information retrieval. How can EM leverage relevance feedback to expand the original query and improve retrieval precision and recall?

(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. Briefly explain issues of IR system.
20. Explain the concept of Latent Semantic Indexing (LSI) in information retrieval. Discuss how LSI utilizes singular value decomposition (SVD) to uncover latent semantic structures in a document collection and improve retrieval accuracy.
21. Briefly explain the concept XML retrieval.
22. Explain Text Mining Process in Details.

(2×5=10 weightage)

