



QP CODE: 26019661



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION MARCH 2026

Fourth Semester

M Sc Artificial Intelligence

ELECTIVE - AI800406 - INFORMATION RETRIEVAL AND MANAGEMENT

2020 Admission Onwards

3E346510

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight **1** each.

1. What are the components of search engine?
2. Discuss the impact of IR on the web.
3. What is the difference between the Boolean retrieval model and the vector-space retrieval model in information retrieval?
4. What are the trade-offs involved in processing and storing sparse vectors in information retrieval compared to dense vectors?
5. How do search engines measure the size of the web?
6. Define Zipf's law.
7. How does link analysis contribute to web search and what are the key concepts of hubs and authorities?
8. What are the key components of the Hadoop ecosystem and how do they interact with MapReduce?
9. Explain different types of information filtering?
10. State bayes Theorem.

(8×1=8 weightage)

Part B (Short Essay/Problems)

Answer any **six** questions.

Weight **2** each.

11. What are the key differences between traditional web search and information retrieval, and how does AI enable advancements in both areas?





12. What are the key components that make up a typical search engine architecture, and how do they work together to enable efficient and accurate information retrieval?
13. Explain the concept of query likelihood modeling in language model-based information retrieval. How does it estimate the relevance of documents to a given query? Compare and contrast query likelihood modeling with other probabilistic retrieval models in terms of effectiveness and computational complexity.
14. Discuss the steps involved in implementing Latent Semantic Indexing for information retrieval. Explain the process of constructing the term-document matrix, performing singular value decomposition (SVD), and interpreting the resulting latent semantic space. Additionally, discuss the advantages and limitations of LSI in real-world retrieval scenarios.
15. Explain different types of queries.
16. Explain the concept of machine translation in cross-lingual retrieval. How does machine translation play a role in enabling users to search and retrieve information across different languages? Discuss the strengths and limitations of machine translation in the context of cross-lingual retrieval.
17. Explain the agglomerative clustering algorithm and how it works to group data points based on similarity. Discuss the different linkage criteria used in agglomerative clustering and their impact on the resulting clusters with example.
18. What are the limitations and trade-offs of using the EM algorithm in information retrieval? Discuss the computational complexity and scalability challenges, as well as the impact of the quality and size of the training data.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain history of IR.
20. Discuss the different types of relevance feedback techniques, such as explicit feedback and implicit feedback. Explain the advantages and limitations of each technique and how they contribute to refining retrieval results.
21. Explain Web Search Architecture.
22. Explain relevance feedback methods and also explain Rocchio algorithm.

(2×5=10 weightage)

