



B.E DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Seventh Semester

INFORMATION SCIENCE AND ENGINEERING

U18IST7001: Information Storage and Retrieval

COURSE OUTCOMES

- CO1:** Set-up different cloud storage options
CO2: Analyze current environment and plan migration to cloud
CO3: Understand the foundations of NLP techniques for text access and retrieval
CO4: Evaluate an Information Retrieval Systems
CO5: Understand Information Retrieval and Feedback model
CO6: Understand the underlined technologies of a web search engine

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
 PART A (10 x 2 = 20 Marks)
 (Answer not more than 40 words)**

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|--|-----|-------------------|
| 1. How does a Cloud Hypervisor work? | CO1 | [K ₃] |
| 2. List out the services offered by Google App Engine | CO1 | [K ₂] |
| 3. Categorize the services of AWS business solutions at a high level. | CO2 | [K ₄] |
| 4. Define AWS Database Migration Service | CO2 | [K ₂] |
| 5. Differentiate between document selection and document ranking in text retrieval techniques. | CO3 | [K ₄] |
| 6. Name few ambiguities in NLP with respect to text-based sentences | CO3 | [K ₂] |
| 7. Why do we use smoothing in NLP? | CO4 | [K ₃] |
| 8. Distinguish between Precision and Recall | CO4 | [K ₃] |
| 9. State the Bayes rule in query likelihood language models | CO5 | [K ₂] |
| 10. How the web pages will be scored based on queries? | CO6 | [K ₃] |

**Answer any FIVE Questions:-
 PART B (5 x 4 = 20 Marks)
 (Answer not more than 80 words)**

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| 11. Explain in detail about cloud delivery model. | CO1 | [K ₂] |
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|-----|---|-----|-------------------|
| 12. | A company is developing a highly available web application using stateless web servers. Which services are suitable for storing session state data? (Select TWO and justify your answer.) | CO2 | [K ₃] |
| | A. CloudWatch | | |
| | B. DynamoDB | | |
| | C. Elastic Load Balancing | | |
| | D. ElastiCache | | |
| | E. Storage Gateway | | |
| 13. | How do you calculate the term weighting in document and query term weight? | CO3 | [K ₂] |
| 14. | What are the applications of statistical language modeling? | CO4 | [K ₂] |
| 15. | Give the representations of Unigram and Bigram Language Models. | CO5 | [K ₂] |
| 16. | Draw the Bow-Tie structure of the web and comment on it. | CO6 | [K ₂] |

**Answer any FIVE Questions:-
PART C (5 x 12 = 60 Marks)
(Answer not more than 300 words)**

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|-----|---|----|-----|-------------------|
| 17. | Demonstrate the steps involved in creating a local linux based cloud web server using Oracle VirtualBox. | 12 | CO1 | [K ₃] |
| 18. | a) Implement Hybrid and Multi-cloud with Cloud Adoption Framework for Microsoft Azure with necessary steps. | 12 | CO2 | [K ₄] |
| 19. | a) Perform information retrieval document search using vector space model from the following input.

Let us understand with an example. consider below statements and a query term. The statements are referred as documents hereafter.

<i>Document 1: Cat runs behind rat</i>
<i>Document 2: Dog runs behind cat</i>
<i>Query: rat</i>

Identify the Term Document Matrix and Similarity Measures | 12 | CO3 | [K ₃] |
| 20. | a) Compare and Contrast Unranked and Ranked Evaluation with a suitable Example | 7 | CO4 | [K ₄] |
| | b) Apply Query Likelihood Retrieval for the given Example. | 5 | CO4 | [K ₃] |

Wikipedia: Taiping Rebellion

The **Taiping Rebellion** was a massive [civil war](#) in [southern China](#) from 1850 to 1864, against the ruling [Manchu Qing dynasty](#). It was a [millenarian movement](#) led by [Hong Xiuquan](#), who announced that he had received visions, in which he learned that he was the younger brother of [Jesus](#). At least 20 million people died, mainly civilians, in one of the [deadliest military conflicts](#) in history.

Query to be Retrieved: *“deadliest war in history”*

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|-----|---|----|-----|-------------------|
| 21. | Explain add-1 (Laplace) smoothing with an example | 12 | CO5 | [K ₃] |
| 22. | Draw a net sketch about the components of search engine and explain it. | 12 | CO6 | [K ₂] |
