

Code No: **R42059**

**R10**

**Set No. 1**

**IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015**

**INFORMATION RETRIEVAL SYSTEMS**

**(Computer Science and Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions**

**All Questions carry equal marks**

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- 1 a) What is Information Retrieval System? Distinguish between IRS and DBMS. [8]
- b) What problems need to address when using a DBMS as part of an Information retrieval System? [7]
- 2 Explain the search capabilities of Information Retrieval System. [15]
- 3 a) Explain about N-Gram Data Structures and PAT Data Structure. [8]
- b) What is Hypertext data structure? Where this data structure is extensively used in? [7]
- 4 a) Show the Data Flow in Information Processing System using Automatic Indexing. [8]
- b) What are the benefits of a weighted index system over a Binary index system? [7]
- 5 a) Discuss the three basic methods for generation of a thesaurus. [5]
- b) Explain about Automatic Term Clustering. [10]
- 6 a) How the Use of Hidden Markov Models for searching textual corpora has introduced a new paradigm for search? [8]
- b) Explain about Ranking Algorithms. [7]
- 7 Explain Information Visualization Technologies. [15]
- 8 Use the Boyer-Moore text search algorithm to search for the term FANCY in the text string FANCIFUL FANNY FRUIT FILLED MY FANCY.
  - a) Show all of the steps and explain each of the required character shifts.
  - b) How many character comparisons are required to obtain a match? [15]
  - c) Compare this to what it would take using the Knuth-Pratt-Morris algorithm

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Set No. 2

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(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions  
All Questions carry equal marks

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- 1 a) What is Information Retrieval System and what are their Objectives? [8]  
b) What are the two major measures commonly associated with information systems and also explain the Effects of Search on Total Document Space. [7]
- 2 a) Explain about Miscellaneous Capabilities. [8]  
b) Explain Automatic indexing in detail. [7]
- 3 Discuss in detail about Stemming Algorithms. [15]
- 4 a) Explain about Probabilistic Weighting approach. What are the different areas in which the probabilistic approach may be applied? [8]  
b) Explain about concept indexing with an example. [7]
- 5 a) Explain the concept of clustering and the process of clustering. What are the guidelines on the characteristics of the classes? [9]  
b) Explain the concept Clustering Using Existing Clusters. [6]
- 6 a) What is Search Statements and Binding? [8]  
b) What is Relevance Feedback? Is the use of positive feedback always better than using negative feedback to improve a query? [7]
- 7 a) Describe the need for information visualization. Under what circumstances is information visualization not useful. [10]  
b) Describe how other senses could be used in displaying results from searches. [5]
- 8 Construct finite state automata for each of the following set of terms:  
a) BIT, FIT, HIT, MIT, PIT, SIT  
b) CAN, CAR, CARPET, CASE, CASK, CAKE  
c) HE, SHE, HER, HERE, THERE, SHEAR  
Be sure to define the three sets I, S, and P along with providing the state drawing [15]

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**Set No. 3**

**IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015**

**INFORMATION RETRIEVAL SYSTEMS**

**(Computer Science and Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions**

**All Questions carry equal marks**

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- 1 a) Explain about Digital Libraries and Data Warehouses. [8]  
b) What is the difference between the concept of a “Digital Library” and an Information Retrieval System? What new areas of information retrieval research may be important to support a Digital Library? [7]
- 2 a) Explain about Browse Capabilities. [7]  
b) What is Indexing? Explain the objectives of indexing and also discuss about Automatic indexing. [8]
- 3 a) What are the two major data structures in any information system? [7]  
b) Describe the similarities and differences between term stemming algorithms and n-grams. [8]
- 4 a) Explain in detail about Vector Weighting. What are the general problems with the Vector Model? [8]  
b) Explain about Natural Language Processing. Describe how use of Natural Language Processing will assist in the disambiguation process [7]
- 5 What is clustering? If clustering has been completed on two different domains. Discuss the impact of merging the domains into a single cluster for both term clustering and item clustering. What factors will affect the amount of work that will be required to merge the clusters together? [15]
- 6 a) Explain Similarity Measures and Ranking. [8]  
b) What are the two major approaches to generating queries? Explain in detail. [7]
- 7 a) Explain in detail about Information Visualization. [6]  
b) What are the Aspects of the Visualization Process? [9]
- 8 a) What are the three classical text retrieval techniques have been defined for organizing items in a textual database? Explain Text Streaming Architecture. [5]  
b) Explain about Software Text Search Systems approach. [10]

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**Set No. 4**

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**INFORMATION RETRIEVAL SYSTEMS**

**(Computer Science and Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions**

**All Questions carry equal marks**

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- 1 What are the four major functional processes that Information Storage and Retrieval System is composed? Explain in detail with neat figures. [15]
- 2 a) What are the similarities and differences between use of fuzzy searches and term masking? What are the potentials for each to introduce errors? [8]  
b) What is the relationship between vocabulary browse and thesauri/concept Classes? [7]
- 3 a) What is the most common data structure used in both database management and Information Retrieval Systems? Explain in detail. [8]  
b) Explain about Hidden Markov Models with an example. [7]
- 4 a) Explain the following algorithms  
i) Simple Term Frequency Algorithm  
ii) Inverse Document Frequency  
iii) Signal Weighting  
iv) Discrimination Value [12]  
b) Under what conditions would the Bayesian and the Vector approach be the same? [3]
- 5 Discuss about Hierarchical clustering in Information Retrieval focuses on the area of hierarchical agglomerative clustering methods. [15]
- 6 a) How would you define an item on the Internet with respect to a search statement and similarity function? [7]  
b) What are the six key characteristics of intelligent agents? [8]
- 7 Explain in detail about Cognition and Perception. [15]
- 8 a) Explain about Hardware Text Search Systems approach. [10]  
b) Trade off the use of hardware versus software text search algorithms citing advantages and disadvantages of each in comparison to the other. [5]