

Code No: **R42059**

**R10**

**Set No. 1**

**IV B.Tech II Semester Regular Examinations, April/May - 2014**

**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) Define Information Retrieval System. Explain the objectives of the Information Retrieval System. [8]  
b) Explain the functional overview of the Information Retrieval System. [7]
- 2 a) Apply the porter stemming algorithm the following words: irresponsible, informative, unrespectable [8]  
b) Tradeoff the use of Precoordination versus Postcoordination [7]
- 3 a) What is the purpose of Thesaurus? Explain what it contains. [8]  
b) Explain the concept of Inverted index file. How it can be used Information Retrieval. [7]
- 4 a) Write about PAT data structures and signature file structures [8]  
b) What is automatic indexing? What are the various types of automatic indexing? [7]
- 5 a) Explain the concept of Information Extraction [8]  
b) Differentiate Full Item indexing, Public File Indexing and Private File Indexing. [7]
- 6 a) Consider the following Term – Term matrix  
T1 T2 T3 T4 T5  
T1 1 1 1 1  
T2 1 0 1 0  
T3 1 0 1 0  
T4 1 1 1 0  
T5 1 0 0 0  
Determine the clusters using Single Link and Star Techniques. [8]  
b) What are the data files used to control and limit the stemming process by k-stem system. [7]
- 7 a) Explain Knuth – Pratt – Morris algorithm. [8]  
b) Explain shift characters table. [7]
- 8 a) What algorithmic basis is used for the GESCAN and Fast Data Finder hardware text search machines? [8]  
b) Discuss about selective dissemination information search techniques with examples. [7]

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**Max. Marks: 75**

**Answer any Five Questions**

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- 1 a) Explain the functional overview of the Information Retrieval System. [8]  
b) Clearly discuss the relevance of Information Retrieval Systems in the context of Digital libraries and Data Warehouses. [7]
- 2 a) Discuss the various Information Retrieval System capabilities in detail. [8]  
b) What the impact on precision and recall in the use is of stop list and stop algorithms? [7]
- 3 a) What is statistical indexing and what are the disadvantages of them? [8]  
b) Explain cutoff method, entropy method, peak and plateau method. [7]
- 4 a) Describe the similarities and differences between term stemming algorithms and n-grams. [8]  
b) Explain the following data structures giving suitable examples:  
i) N-gram ii) PAT [7]
- 5 a) Compare and contrast term clustering and item clustering. [8]  
b) Differentiate between Manual Clustering and Automatic Term Clustering. Explain with suitable examples. [7]
- 6 a) Explain statistical indexing in detail. [8]  
b) How do you expect that relevance feedback using negative judgments will affect the precision and recall of an information system. [7]
- 7 a) What are the data files used to control and limit the stemming process by k-stem system. [8]  
b) Discuss the difficulties of a user being able to correlate his search to the Hit file. What approach is to be used to overcome these problems? [7]
- 8 a) List out the differences between Boyer-Moore text search algorithm and Knuth-Pratt-Morris algorithm. [8]  
b) What algorithmic basis is used for the GESCAN and Fast Data Finder hardware text search machines? [7]

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**Set No. 3**

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**Time : 3 hours**

**Max. Marks: 75**

**Answer any Five Questions  
All Questions carry equal marks**

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- 1 a) Explain the functional overview of the Information Retrieval System. [8]  
b) What are the problems with Luhn's concept of "resolving power"? [7]
- 2 a) What is a Browse capability? Explain about various browse capabilities. [8]  
b) What is linkage? Explain precoordination and postcoordination. [7]
- 3 a) Which stemming technique is used by INQUERY system. Explain. [8]  
b) What are hypertext linkages? [7]
- 4 a) Explain the weighting process of index terms. [8]  
b) Describe the similarities and differences between term stemming algorithms and n-grams. [7]
- 5 a) Clearly bring out the steps of the process of clustering. [8]  
b) Define clustering. What are the general guidelines for clustering? [7]
- 6 a) Explain the advantages of probabilistic approach. Give an example where the probabilistic approach may be applied. [8]  
b) Write a short notes on the following [7]  
i) Bayesian Model ii) Simple Term Frequency Algorithm
- 7 a) Write short notes on the following with examples [8]  
i) Similarity measures ii) Ranking algorithms  
b) Discuss about selective dissemination information search techniques with examples. [7]
- 8 a) Describe the need for information visualization. [8]  
b) Differentiate hardware versus software text search algorithms. [7]

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**Time : 3 hours**

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**Answer any Five Questions  
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- 1 a) Discuss the objectives of IRS [8]  
b) What is a Browse capability? Explain about various browse capabilities. [7]
- 2 a) What is a Precoordination? How it is different from linkages? [8]  
b) What are the problems with Luhn's concept of "resolving power"? [7]
- 3 a) Describe how the PAT Data structure is different from n-grams. [8]  
b) What is indexing? Explain its objectives. Write about Indexing process. [7]
- 4 a) What is automatic indexing? Give the various classes of automatic indexing? [8]  
b) Describe the similarities and differences between term stemming algorithms and n-grams. [7]
- 5 a) How clustering effects precision and recall? [8]  
b) Compare and contrast manual clustering and Automatic Term Clustering. [7]
- 6 a) Discuss the difficulties of a user being able to correlate his search to the Hit file. What approach is to be used to overcome these problems? [8]  
b) Describe the need for information visualization. [7]
- 7 a) Consider the following Term – Term matrix [8]  
T1 T2 T3 T4 T5  
T1 1 1 1 1  
T2 1 0 1 0  
T3 1 0 1 0  
T4 1 1 1 0  
T5 1 0 0 0  
Determine the clusters using Cliques Techniques.  
b) Discuss about selective dissemination information search techniques with examples. [7]
- 8 a) Differentiate hardware versus software text search algorithms. [8]  
b) Write about Boyer-Moore text search algorithm. [7]