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06IS63

Sixth Semester B.E. Degree Examination, June-July 2009
File Structure

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Discuss about the Fundamental File processing operations. **(10 Marks)**
b. What are the major strengths and weekness of CD – ROM? **(06 Marks)**
c. Suppose that we want to store a file with 60,000 fixed length data records where each requires 80 bytes and records are not allowed to space two sectors, sector/track = 63 bytes per sector = 512, tracks per cylinder = 16 and average rotational delay = 6 m/s. How many cylinders are required for the file? **(04 Marks)**

2 a. Explain the different Record structures used in the organization of a file. **(10 Marks)**
b. Explain unix tools for sequential processing. **(05 Marks)**
c. How indexing is done that is too large to hold in the memory. **(05 Marks)**

3 a. Explain the advantages and disadvantages of 3 types of placement strategies. **(08 Marks)**
b. Explain the key sorting algorithm, with an example. **(07 Marks)**
c. Briefly discuss about the class Hierarchy for Record Buffer objects. **(05 Marks)**

4 a. Explain the model for implementing the consequential processing and its applications to general ledger program. **(12 Marks)**
b. Describe how merging is used to sort large files on the disk. **(04 Marks)**
c. Write a note on conceptual tool kit for external sorting. **(04 Marks)**

PART – B

5 a. What is multilevel indexing? Explain the concept of B – Trees in multilevel indexing with an example. **(10 Marks)**
b. Explain deletion, Merging and redistribution of elements in B – Tree. **(10 Marks)**

6 a. Explain the concept of indexed sequential access. **(05 Marks)**
b. Give the structure of indexed set blocks with an example. **(10 Marks)**
c. Compare and constrast the organization of B – Trees and B^+ Trees. **(05 Marks)**

7 a. What is Hashing? Explain the different Hashing functions with an example. **(10 Marks)**
b. What is collision? Explain the process of collision resolution by progressive overflow. **(10 Marks)**

8 Write a short notes on:
a. Extendible Hashing
b. Inverted lists
c. AVL Trees
d. K – Way Merge. **(20 Marks)**

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06IS63

Sixth Semester B.E. Degree Examination, Dec.09/Jan.10
File Structures

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Briefly discuss the evolution of file structure. **(06 Marks)**

b. Differentiate between physical files and logical files. **(04 Marks)**

c. What are the two basic ways to address data on disks? **(04 Marks)**

d. What are the different buffering strategies? Explain briefly. **(06 Marks)**

2 a. Explain the different ways of adding structure to files to maintain the identity of fields. **(08 Marks)**

b. What are the different methods of accessing records? Explain direct access. **(04 Marks)**

c. Distinguish between internal and external fragmentation. Describe the remedial measures to minimize fragmentation. **(08 Marks)**

3 a. Explain the operations required to maintain an indexed file, in detail. **(10 Marks)**

b. Explain the limitations of binary searching and internal sorting. **(10 Marks)**

4 a. Explain with example, how object oriented model can be extended to perform multiway combining of files. **(05 Marks)**

b. How large files are ordered on disk, using merging? **(05 Marks)**

c. Describe how co-sequential processing is implemented in a general ledger program. **(10 Marks)**

PART – B

5 a. What is multilevel indexing? How are B-trees created? Explain with an example. **(10 Marks)**

b. With a neat diagram, explain paged binary trees. What are its disadvantages? **(10 Marks)**

6 a. With a neat sketch, discuss simple prefix B+ tree and its maintenance. **(10 Marks)**

b. With a suitable diagram, explain the internal structure of index set blocks. **(10 Marks)**

7 a. Explain a simple hashing algorithm. **(10 Marks)**

b. Explain the different collision resolution techniques. **(10 Marks)**

8 Write short notes on:

a. Organization of CD-ROM

b. Sorting and co-sequential processing in UNIX

c. Buffer class hierarchy

d. Dynamic hashing **(20 Marks)**

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06IS63

Sixth Semester B.E. Degree Examination, May/June 2010
File Structures

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Describe the relation between the physical file and the logical file. **(04 Marks)**
b. Briefly explain the different basic ways to organize the data on a disk. **(10 Marks)**
c. Calculate the space required on tape, if we want to store the 1 million 100 bytes records on a 7250 bpi tape, that has an internal block gap of 0.2 inches and with a blocking factor of 60. Hence calculate the space required. **(06 Marks)**

2 a. What are the different ways of adding structures to a file to maintain the identity of records? Explain each with examples. **(10 Marks)**
b. Define the following terms :
i) File-access method ii) Meta-data iii) RRN iv) Template class. **(04 Marks)**
c. Design an algorithm for sequential – search. **(06 Marks)**

3 a. Define data compression. Explain irreversible compression techniques. **(06 Marks)**
b. Explain the key-sorting techniques and their limitations. **(06 Marks)**
c. What is meant by an index? Explain the operations required to maintain the index files. **(08 Marks)**

4 a. Explain the object-oriented model for implementing co-sequential process. **(10 Marks)**
b. Briefly explain the different methods used to sort files on a tape. **(10 Marks)**

PART – B

5 a. Define a B-tree. Explain the creation of a B-tree, with examples. **(10 Marks)**
b. Explain deletion, merging and redistribution of elements in a B-tree. **(10 Marks)**

6 a. Explain the block splitting and merging due to insertion and deletion in the sequence set, with examples. **(10 Marks)**
b. Explain the simple-prefix B+ tree. **(05 Marks)**
c. Compare the strengths and weakness of B+ trees and B-tress. **(05 Marks)**

7 a. Define hashing. Explain a simple hashing algorithm. **(10 Marks)**
b. Explain the double hashing and chained progressive overflow collision resolution techniques. **(10 Marks)**

8 a. Explain the working of extendible hashing. **(10 Marks)**
b. Construct a procedure for finding buddy-buckets. **(05 Marks)**
c. Explain the briefly the linear-hashing method. **(05 Marks)**

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