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10IS63

**Sixth Semester B.E. Degree Examination, June/July 2014**

**File Structures**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. With a neat sketch, explain UNIX directory structure. (05 Marks)  
b. Differentiate between the physical file and the logical file. (05 Marks)  
c. Explain the following functions:  
i) Open a file      ii) Close a file (10 Marks)
- 2 a. What is a record? Explain different methods for organizing records of a file with example. (11 Marks)  
b. Explain briefly how to manipulate buffers using classes. (09 Marks)
- 3 a. What are the limitations of binary search and internal sorting? (08 Marks)  
b. Explain the different operations required to maintain indexed file. (12 Marks)
- 4 a. Explain how co-sequential processing is implemented in a general ledger program. (10 Marks)  
b. Explain how much time a merge sort takes to sort a given file. (10 Marks)

**PART – B**

- 5 a. What is B-tree? Explain deletion, merging and redistribution of elements on B-trees. (10 Marks)  
b. Write a note on problem associated with paged binary trees. (06 Marks)  
c. List the four properties of B\* trees. (04 Marks)
- 6 a. With an example, explain adding a simple index to the sequence set. (10 Marks)  
b. Explain how to load a simple prefix B+ tree. (10 Marks)
- 7 a. What is Hashing? Explain the three different steps used in a simple hashing algorithm. (10 Marks)  
b. Briefly explain the different collision resolution techniques by progressive overflow. (10 Marks)
- 8 Write short notes on:  
a. Extendible hashing  
b. Pinned records  
c. CD-ROM strengths and weaknesses  
d. K-way Merge (20 Marks)

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Important Note: 1. On completing your answers, carefully draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.



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**Sixth Semester B.E. Degree Examination, June/July 2015**  
**File Structures**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Briefly explain History of file structure design. (06 Marks)
- b. Explain the sector based data organization in magnetic Disk with a neat diagram. (08 Marks)
- c. Explain the organization of data on Nine – Track Tapes with a neat diagram. (06 Marks)
- 2 a. Define Field and Record. Explain the different methods for organizing fields and records of a file, with examples. (12 Marks)
- b. Define RRN (Relative Record Number), Explain how does it support direct access with example. (06 Marks)
- c. Distinguish between File access and File organization. (02 Marks)
- 3 a. What is redundancy reduction? Explain how Run – Length – Encoding helps in redundancy reduction with an example. (06 Marks)
- b. Explain How space can be reclaimed in files, using record deletion and storage compaction technique. (06 Marks)
- c. Write an algorithm for searching a record from a file using (i) Binary search (ii) Sequential search. (06 Marks)
- d. Define Indexing and its significance in File structures. (02 Marks)
- 4 a. What is co – sequential processing and what are assumptions and components of the model? (08 Marks)
- b. Explain the object – oriented model for implementing Co-Sequential process. (06 Marks)
- c. Explain the K – Way merge algorithm with an example. (06 Marks)

**PART – B**

- 5 a. What are the two – major drawbacks with binary search to search a simple sorted index on secondary storage. (02 Marks)
- b. Define B – Tree. Show the B – Tree of order – 4 (four) that result from loading the following sets of keys in order. i] CGJXNSUOAEHBIF ii] CSDAMPiBWNGURKE (08 Marks)
- c. With example explain the following operations in B – Tree, with example. i) Deletion ii) Merging iii) Redistribution. (10 Marks)
- 6 a. What is indexed sequential access? Explain the Block splitting and merging due to insertion and deletion in sequence set with example. (10 Marks)
- b. Explain the internal structure of index set blocks. (10 Marks)
- 7 a. Define Hashing? Discuss the various collision resolution techniques with example to avoid collision. (10 Marks)
- b. Suppose that 10,000 addresses are allocated to hold 8000 records in a randomly hashed file and that each address can hold one record. Compute the following values. i) The packing density for the file ii) The expected number of address with no records assigned to them by the hash function. iii) The expected number of addresses with one record assigned. iv) The expected number of overflow records. (10 Marks)
- 8 a. Write short notes on the following: i) Dynamic Hashing ii) Linear Hashing iii) Extendible Hashing. (12 Marks)
- b. Explain, How does Extendible Hashing works? (08 Marks)

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**Sixth Semester B.E. Degree Examination, Dec.2015/Jan.2016**

**File Structures**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. What do you mean by file structure? Explain in brief a short history of file structure design. (04 Marks)  
b. Bring out the differences between physical files and logical files. (05 Marks)  
c. Define the following terms :  
i) Seek time ii) Rotational Delay iii) Transfer time (06 Marks)  
d. With neat sketch, explain UNIX directory structure. (05 Marks)
- 2 a. What do you mean by a record? Explain different methods for organizing records of a file with an example. (10 Marks)  
b. Explain the tools available in UNIX for sequential processing of a file. (04 Marks)  
c. Write a Pack( ) and unpack ( ) methods in C++ for employee id, employee name, employee designation, employee contact number fields for variable length records. (06 Marks)
- 3 a. Explain the different limitations of binary searching and internal sorting. (06 Marks)  
b. Explain the algorithm for key sort. (06 Marks)  
c. Explain the different operations required to maintain an indexed file. (08 Marks)
- 4 a. Explain how co – sequential processing is implemented in a general ledger program. (10 Marks)  
b. Explain how much time merge sort takes to sort a given file. (10 Marks)

**PART – B**

- 5 a. What do you mean by B – tree? Explain deletion, merging and redistribution of elements on B – tree. (10 Marks)  
b. What are paged binary trees? Explain the problems associated with paged binary trees. (06 Marks)  
c. Mention the four properties of B\* trees. (04 Marks)
- 6 a. Define indexed sequential access. Explain the block splitting and merging due to insertion and deletion in a sequence set with example. (10 Marks)  
b. Explain simple prefix B<sup>+</sup> trees and its maintenance. (10 Marks)
- 7 a. What do you mean by hashing? Explain the simple hashing algorithm with example. (10 Marks)  
b. What is collision? Explain the process of collision resolution by progressive overflow. (10 Marks)
- 8 Write a short note on :  
i) Linear Hashing ii) AVL trees  
iii) Strengths and weakness of CD Rom iv) Pinned Records. (20 Marks)

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