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10IS63

## 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] CSDAMPBIBWNGURKE (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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Important Note : 1. On completing your answers, compulsorily 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.