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15IS62

Sixth Semester B.E. Degree Examination, July/August 2021 File Structures

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1
 - a. Define File Structures. Explain function seek with parameters. (05 Marks)
 - b. Explain sector loaded data organization in magnetic disk. (06 Marks)
 - c. Explain the organization of data on nine-track tape with a neat diagram. (05 Marks)

- 2
 - a. What is Field? Explain different methods for organizing fields of a Record with example. (10 Marks)
 - b. Explain the concept of inheritance using I/O buffer class hierarchy. (06 Marks)

- 3
 - a. What is data compression? Explain different techniques available for data compression. (12 Marks)
 - b. Explain how space can be reclaimed in files. Using record deletion and storage compaction technique. (04 Marks)

- 4
 - a. Explain operation required to maintain an indexed file. (08 Marks)
 - b. What are inverted lists? How does it improve the secondary index structure? (08 Marks)

- 5
 - a. What is consequential operation? Explain consequential match function based on a single loop. (08 Marks)
 - b. With example. Explain K-way merge and selection tree for merging larger number of lists. (08 Marks)

- 6
 - a. What is B-tree? Show the B-tree of order -4 that result from loading the following set of keys in order. Z J R O T U M W V L S K P Q N X. (10 Marks)
 - b. List out the properties of B-tree and explain worst case search. (06 Marks)

- 7
 - a. What is simple prefix B⁺ tree? Explain loading a prefix B⁺ tree. (10 Marks)
 - b. Explain internal structure of index set blocks a variable order B- Tree. (06 Marks)

- 8
 - a. Define Separator. Write a C++ function to find shortest separator. (08 Marks)
 - b. Explain block splitting and merging due to insertion and detection in sequence set. (08 Marks)

- 9
 - a. Define hashing. Explain simple hashing algorithm with example. (08 Marks)
 - b. Suppose that 10000 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) Packing density for the file
 - ii) Expected number of address with no record assigned to them by hash function.
 - iii) Expected number of address with one record assigned.
 - iv) Expected number of overflow records. (08 Marks)

- 10
 - a. Explain how extendible hashing works. (10 Marks)
 - b. Write a short note on Dynamic hashing. (06 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.