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Sixth Semester B.E. Degree Examination, Jan./Feb. 2023 File Structures

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are physical and Logical files? Write a program to read and display the contents of file using C and C++ streams? (08 Marks)
- b. Calculate the space required on a tape, if we want to store 1 million 100 byte records on a 6250 – bpi tape that has an interblock gap of 0.3 inches with a physical length of data block of 0.016 inch. Hence calculate the space required. (04 Marks)
- c. Explain the layers of procedures involved in transmitted a byte from program data area to a file on a disk? (08 Marks)

OR

- 2 a. What are the different ways of adding structure to a file to maintain identify of records? Explain each with an example. (10 Marks)
- b. Write a program to read and write student objects with fixed – length records and fields delimited by “|” (pipeline). Implement pack(), unpack(), modify() and search () methods. (10 Marks)

Module-2

- 3 a. What is an Index? What are the Operations required to maintain an index file? (10 Marks)
- b. Explain key sort techniques and limitation with an algorithm. (10 Marks)

OR

- 4 a. What is data compression? Explain need of data compression with different compression techniques. (10 Marks)
- b. Explain in brief, how spaces in files can be reclaimed with an example. (10 Marks)

Module-3

- 5 a. Define consequential processing. Explain matching of names in two list with example and write the match function based on a single loop. (10 Marks)
- b. Explain the general Ledger program for implementing consequential process. (10 Marks)

OR

- 6 a. Construct a B-tree for the following set of key (order 4). Show every step clearly
C S D T A M P I B W N G U R. (10 Marks)
- b. What is a B-Tree? List the properties of B-Tree and write the rules for deleting the key from a node in a B-tree. (10 Marks)

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.

Module-4

- 7 a. What is Indexed Sequential Access? With an example, explain maintain a sequence set. (10 Marks)
b. What is simple prefix B⁺ tree? Explain with an example. (10 Marks)

OR

- 8 a. Explain in detail, the Internal structure of Index Set Block. (10 Marks)
b. Explain in brief the loading of a simple prefix B⁺ tree. (10 Marks)

Module-5

- 9 a. Define Hashing. Explain Simple Hashing algorithm with an example. (10 Marks)
b. Explain double Hashing and chained progressive overflow in detail. (10 Marks)

OR

- 10 a. Explain the working of extendible Hashing. (10 Marks)
b. Explain the following with appropriate diagrams
i) Dynamic Hashing
ii) Linear Hashing (10 Marks)
