

CBCS SCHEME

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15IS6

Sixth Semester B.E. Degree Examination, Jan./Feb. 2021

File Structures

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Implement 'wc' unix command in C++. (08 Marks)
- b. Suppose it is needed to store a backup of a large file with 1 million records of 100 byte records on a 6250 bpi tape that has an
- (i) Internal block gap of 0.1" with blocking factor 10
 - (ii) Internal block gap of 0.2" with blocking factor 20
- for each case calculate the space required to store file on the tape, effective recording density and effective data transmission rate with a tape speed of 200ips. (08 Marks)

OR

- 2 a. Implement "Fixed length Field" Method of field structure using "#" as a record delimiter in the file. (04 Marks)
- b. Implement "Delimited Field" method of field structure using "|" as a field delimiter and "#" as a record delimiter in a file. (04 Marks)
- c. Explain organization of disks and cost of disk access. (08 Marks)

Module-2

- 3 a. Write a C++ program to reclaim the Free space resulting from the deletion of records using linked list. (10 Marks)
- b. Explain the key sorting technique and their limitations. (06 Marks)

OR

- 4 a. Explain operations required to maintain an Indexed file. (08 Marks)
- b. Explain the Improving of secondary Index structure. (08 Marks)

Module-3

- 5 a. Write a C++ program to read K-list of names and merge them using K-way merge algorithm with K = 8. (10 Marks)
- b. Using c-sequential match based on a single loop demonstrates intersection of two lists. (06 Marks)

OR

- 6 a. Write a Formal definition of B-Tree and explain the worst case search depth of the tree. (08 Marks)
- b. With an order 4 construct a B-Tree for the following set of keys and show the operation of merging and redistribution.
M N A B J K L C R S D E O → set of keys. (08 Marks)

Module-4

- 7 a. Explain simple prefix B+-Tree and its maintenance. (10 Marks)
- b. Write a note on Indexed sequential Access. (06 Marks)

OR

- 8 a. Explain the block splitting and merging due to Insertion and deletion in the sequence search with examples. (10 Marks)
- b. Differentiate between B –Tree and B+ Tree (06 Marks)

Module-5

- 9 a. Define Hashing. Prove that the performance of chained progressive overflow is more than the progressive overflow Collision resolution technique. (10 Marks)
- b. Suppose that 1000 locations are allocated to hold 700 records in a randomly hashed file and that each address can hold 2 records. Compute the following values.
 - (i) Packing density
 - (ii) Expected number of address with no records
 - (iii) Expected number of addresses with exactly one record
 - (iv) Expected number of overflow records(06 Marks)



OR

- 10 a. Explain working of Extendable Hashing. (06 Marks)
- b. Write a C++ program to store and retrieve student data from file using Hashing. Use an collision resolution technique. (10 Marks)
