CBCS SCHEME

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15IS62

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
File Structures

Time: 3 hrs. Max. Marks: 80

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

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-1

1 a. Implement the UNIX command "head-n filename" where n is the number of lines from the beginning of the file using C language. Display the content on the standard output. **(08 Marks)**

b. Suppose it is needed to store a back up of large mailing list with 1 million records of 100 bytes records on 2200 feet reels of 6250 bpi tape with an internal block gap of 0.3" and tape speed is 100 inches per second.

i) What would be the minimum blocking factor required to fit the file on the tape?

ii) If a blocking factor of 60 is used, how long would it take to read one block, including the gap? How long would it take to read the entire file? **(08 Marks)**

OR

2 a. Write a C++ program to perform the following operations : i) read ii) write iii) display on the person data which has the attribute name, gender, age and city by overloading << , >> operators. **(08 Marks)**

b. What are the different ways of adding structure to a field to maintain the identity of fields? Explain each with an example. **(08 Marks)**

Module-2

3 a. How spaces can be reclaimed from deletion of records in the variable length records? Explain with an example. **(08 Marks)**

b. Explain the key sorting techniques and limitation with an algorithm. **(08 Marks)**

OR

4 a. Write a C++ program to simple index on primary key for a file of student objects. Implement add( ), search( ) functions using the index. **(08 Marks)**

b. What are the limitations of retrieving records using secondary keys? Explain the solution by using 'Linking the Reference' techniques. **(08 Marks)**

Module-3

5 a. Write a C++ program snippets for co-sequential matching and merging with an example. **(08 Marks)**

b. Write C++ functions for heap sorting. Show the construction and deletion of heap tree. **(08 Marks)**

OR

6 a. What are B-trees? Explain with an example, the creation of B-tree. **(10 Marks)**

b. Derive an equation for worst-case search depth in B–trees. Find the depth of the B-tree for 2×10^9 records and the order of the tree is 2048. **(06 Marks)**

Module-4

7 a. What is indexed sequential access of a record? Describe maintenance of a sequence set. **(06 Marks)**

b. Explain simple prefix B+ tree. Discuss the issues involved in maintenance of such tree. **(10 Marks)**

OR

8 a. Discuss the sequence of loading a simple prefix B+ tree. **(10 Marks)**

b. Compare B-tree, simple prefix B+ trees and B+ tree. **(06 Marks)**

Module-5

9 a. Describe the collision resolution by progressive overflow method with an example. **(08 Marks)**

b. Write short note on the following collision resolution techniques :

i) Chained progressive overflow

ii) Scatter tables. **(08 Marks)**

OR

10 a. Discuss the working principle of extendible hashing. **(08 Marks)**

b. Explain the following with appropriate diagrams : i) dynamic hashing ii) linear hashing. **(08 Marks)**

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