CBCS SCHEME

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15IS62

Sixth Semester B.E. Degree Examination, July/August 2022
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. What is record? Explain different methods for organizing records of a file with example. **(08 Marks)**

b. Differentiate between the physical file and the logical file. **(04 Marks)**

c. Differentiate between Constant Linear Velocity (CLV) and Constant Angular Velocity (CAN). **(04 Marks)**

OR

2 a. Explain the following functions :
i) Open a file ii) Close a file. **(08 Marks)**

b. What are the three distinct operations that contribute to the total cost of access on disk? **(04 Marks)**

c. What are file structures? What is the driving force behind the file structure design? **(04 Marks)**

Module-2

3 a. Explain the different operations required to maintain indexed file. **(08 Marks)**

b. What are inverted lists? How does it improve the secondary index structure? **(08 Marks)**

OR

4 a. Briefly explain with example how spaces can be reclaimed dynamically in fixed length records. **(06 Marks)**

b. What is redundancy reduction? Explain how run length encoding helps in redundancy reduction with an example. **(05 Marks)**

c. Explain key sorting technique and their limitations. **(05 Marks)**

Module-3

5 a. With example explain the following operations in B-tree.
i) Deletion ii) Merging iii) Redistribution. **(08 Marks)**

b. Explain how consequential processing is implemented in a general ledger program. **(08 Marks)**

OR

6 a. What are the properties of B-tree? Explain worst case search. **(06 Marks)**

b. Explain how much time a merge sort takes to sort a given file. **(06 Marks)**

c. With example explain selection tree for merging large number of lists. **(04 Marks)**

Module-4

7 a. What is indexed sequential access? Explain block splitting and merging due to insertion and deletion in sequence set with example. **(08 Marks)**

b. With a suitable diagram, explain the internal structure of index set blocks. **(08 Marks)**

OR

8 a. Explain simple prefix B+ – trees and its maintenance, with a neat diagram. **(12 Marks)**
b. Compare B+ – trees and simple prefix B+ – trees. **(04 Marks)**

Module-5

9 a. What is collision? Discuss the various collision resolution techniques with example to avoid collision. **(08 Marks)**
b. Explain how does extendible Hashing works. **(08 Marks)**

OR

10 a. Suppose that 10,000 addresses are allocated to hold 8,000 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 addresses 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. **(06 Marks)**
b. Write short notes on the following :
i) Dynamic hashing
ii) Linear hashing. **(06 Marks)**
c. Explain a simple hashing algorithm with example. **(04 Marks)**

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