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10IS63

Sixth Semester B.E. Degree Examination, Feb./Mar. 2022
File Structures

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. What are file structures? Explain briefly the evolution of file structure design. **(07 Marks)**

b. Write a program to display the contents of a file using C++ stream classes. **(04 Marks)**

c. What is seeking? Flow is it supported in C++ stream? **(06 Marks)**

d. Explain the function READ with parameters. **(03 Marks)**

2 a. Define field. Explain the different methods for organizing fields of a file with examples. **(10 Marks)**

b. Explain UNIX tools for sequential processing of a file. **(04 Marks)**

c. What is RRN? Explain direct access method. **(06 Marks)**

3 a. What is data compression? Explain suppressing repeating sequences with an example. **(06 Marks)**

b. Explain the algorithm for keysort. **(06 Marks)**

c. Explain the different operations required to maintain an indexed file. **(08 Marks)**

4 a. Write and explain the procedure to match names in two lists using consequential processing with example. **(10 Marks)**

b. Explain replacement selection procedure. Explain the step – by – step working of replacement selection for the following values with memory, P = 3.
21, 67, 12, 5, 47, 16. **(10 Marks)**

PART – B

5 a. Give the formal definition of B-tree properties, what are the rules for deletion of key "K" from node "n"? **(06 Marks)**

b. Explain the insertion method in B – tree. **(04 Marks)**

c. Explain virtual B-trees and LRU replacement. **(06 Marks)**

d. List the properties of B* trees. **(04 Marks)**

6 a. Explain the considerations in the choice of block size of a sequence set. **(04 Marks)**

b. What is a simple prefix B+ tree? Explain its maintenance with diagram. **(10 Marks)**

c. What are the characteristics shared by B-trees, B+ trees and simple prefix B+ trees? **(06 Marks)**

7 a. What is collision? Explain the different ways to reduce the number of collisions. **(06 Marks)**

b. Assume that 1000 addresses are allocated to hold 500 records in a randomly hashed file and that each address can hold on record.
i) What is the resulting packing density? Assuming Poisson distribution
ii) Determine how many addresses will have no records assigned to them
iii) How many will have one record plus one or more synonyms assigned to them?
iv) What is the expected number of overflow records? **(08 Marks)**

c. What is hashing? Explain the collision resolution technique of scatter table. **(06 Marks)**

8 a. Explain how extendible hashing works. **(10 Marks)**

b. Discuss the performance of extendible hashing. **(10 Marks)**

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