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10IS63

Sixth Semester B.E. Degree Examination, June/July 2018
File Structures

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Explain the fundamental file processing operations.   **(10 Marks)**
   b. Explain the major strength and weakness of CD–ROM.   **(05 Marks)**
   c. Suppose that we want to store a file with 50,000 fixed-length data records, where each data records requires 256 bytes and records are not allowed to space two sectors, sector/tracks = 63; bytes per sector = 512, track per cylinder =16. How many cylinders are required for the file?   **(05 Marks**

2 a. What is a record? Explain different methods for organizing records of a file with example for each.   **(12 Marks)**
   b. Write brief note on : i) Performance of sequential search ii) Direct access.   **(08 Marks)**

3 a. Define data compression. Explain Run–length encoding algorithms.   **(06 Marks)**
   b. Explain the advantages and disadvantages of 3 types of placement strategies.   **(06 Marks)**
   c. What is meant by an index? Explain the operations required to maintain the index files.
                                                                                               (08 Marks)

4 a. What is co-sequential processing and what are the assumptions and components of the model?   **(10 Marks)**
   b. Explain the following : i) K–way merge ii) A selection tree for merging large number of lists.   **(10 Marks)**

PART – B

5 a. Define a B-tree. Explain the creation of B-tree with examples.   **(10 Marks)**
   b. With a neat diagram, explain paged binary tress. What are its disadvantages?   **(10 Marks)**

6 a. Explain the concept of indexed sequential access.   **(05 Marks)**
   b. Give the structure of indexed set blocks with an example.   **(10 Marks)**
   c. Compare and contrast the organization of B-tree and B^+-Trees.   **(05 Marks)**

7 a. Suppose that 1000 addresses are allocated to hold 500 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
       iii) The expected number of addresses with exactly one record assigned
       iv) The expected number of addresses with one record plus one or more synonymous
       v)   The expected number of overflow records assuming that only one record can be assigned to each home address
       vi) Percentage of overflow records.   **(10 Marks)**
   b. Define hashing. Explain a simple hashing algorithm with an example.   **(10 Marks)**

8 a. Explain how extendible hashing works.   **(10 Marks)**
   b. Explain dynamic hashing and linear hashing with diagrams.   **(10 Marks)**

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