

CBCS SCHEME



15IS62

Sixth Semester B.E. Degree Examination, July/August 2021

File Structures

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Define File Structures. Explain function seek with parameters. (05 Marks)
b. Explain sector loaded data organization in magnetic disk. (06 Marks)
c. Explain the organization of data on nine-track tape with a neat diagram. (05 Marks)
- 2 a. What is Field? Explain different methods for organizing fields of a Record with example. (10 Marks)
b. Explain the concept of inheritance using I/O buffer class hierarchy. (06 Marks)
- 3 a. What is data compression? Explain different techniques available for data compression. (12 Marks)
b. Explain how space can be reclaimed in files. Using record deletion and storage compaction technique. (04 Marks)
- 4 a. Explain operation required to maintain an indexed file. (08 Marks)
b. What are inverted lists? How does it improve the secondary index structure? (08 Marks)
- 5 a. What is consequential operation? Explain consequential match function based on a single loop. (08 Marks)
b. With example. Explain K-way merge and selection tree for merging larger number of lists. (08 Marks)
- 6 a. What is B-tree? Show the B-tree of order -4 that result from loading the following set of keys in order. Z J R O T U M W V L S K P Q N X. (10 Marks)
b. List out the properties of B-tree and explain worst case search. (06 Marks)
- 7 a. What is simple prefix B⁺ tree? Explain loading a prefix B⁺ tree. (10 Marks)
b. Explain internal structure of index set blocks a variable order B- Tree. (06 Marks)
- 8 a. Define Separator. Write a C++ function to find shortest separator. (08 Marks)
b. Explain block splitting and merging due to insertion and detection in sequence set. (08 Marks)
- 9 a. Define hashing. Explain simple hashing algorithm with example. (08 Marks)
b. Suppose that 10000 addresses are allocated to hold 8000 records in a randomly hashed file and that each address can hold one record. Compute the following values. (08 Marks)
 - i) Packing density for the file
 - ii) Expected number of address with no record assigned to them by hash function.
 - iii) Expected number of address with one record assigned.
 - iv) Expected number of overflow records.
- 10 a. Explain how extendible hashing works. (10 Marks)
b. Write a short note on Dynamic hashing. (06 Marks)

* * * * *

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.