PRACTICE EXAM

Difficulty: MEDIUM

Questions: 10

Operating Systems: File Systems Exam

Instructions:

Please answer all questions to the best of your ability. Read each question carefully and provide your answer in the space provided.

Section 1: Multiple Choice Questions (40 points total, 10 points each)

Instructions: Choose the best answer for each question.

Question 1: Which of the following is NOT a directory operation?
A) Create
B) Delete
C) Execute
D) Rename

Question 2: In a single-level directory system, how many files can have the same name?
A) Only one
B) Two
C) As many as the disk can hold
D) It depends on the operating system

Question 3: What is the primary advantage of contiguous file allocation?
A) Eliminates external fragmentation
B) Simplifies file access and offers good performance
C) Allows files to grow dynamically
D) Minimizes disk space usage

Question 4: What data structure is commonly used to represent files and their metadata?
A) Page Table
B) File Allocation Table (FAT)
C) I-node
D) Segment Table

Section 2: Short Answer Questions (30 points total, 15 points each)

Instructions: Answer each question in 2-3 sentences.

Question 5: Briefly explain the difference between a single-level directory system and a hierarchical directory system.

Question 6: Explain the purpose of the 'link' directory operation and how it affects file sharing.

Section 3: Problem-Solving Questions (30 points total, 15 points each)

Instructions: Provide detailed answers, explaining your reasoning.

Question 7: Consider a file system using contiguous allocation. A file currently occupies blocks 100-109 on the disk. If the file needs to be extended by 5 blocks, explain what steps the operating system needs to take to extend the file, and what could happen if there are not 5 contiguous blocks available after block 109.

Question 8: Describe the advantages and disadvantages of using linked list allocation with a File Allocation Table (FAT) compared to linked list allocation without a table.