PRACTICE EXAM

Difficulty: MEDIUM

Questions: 10

Operating Systems: File Systems Exam

Instructions: Please answer all questions to the best of your ability.

Multiple Choice Questions (4 points each, 40 points total)

Instructions: Choose the best answer for each question.

Question 1: Which of the following is NOT a typical file attribute?
A) Protection
B) Creation time
C) File extension
D) File owner

Question 2: Which file structure is most commonly used by general-purpose operating systems?
A) Record sequence
B) Tree
C) Byte sequence
D) Indexed sequence

Question 3: In the context of directory operations, what is the purpose of the 'link' operation?
A) To create a new directory.
B) To delete an existing file.
C) To create another name (or alias) for an existing file.
D) To move a file to a different directory.

Question 4: Which of the following is a primary advantage of contiguous file allocation?
A) Reduced external fragmentation
B) Simplicity and performance benefits
C) Efficient use of disk space
D) Flexibility in file size

Short Answer Questions (6 points each, 30 points total)

Instructions: Answer each question in 2-3 sentences.

Question 5: What are the three key questions that arise when designing a file system related to information management and security?

Question 6: Briefly explain the difference between a single-level directory system and a hierarchical directory system.

Question 7: Describe the purpose of the "open" and "close" file operations.

Problem-Solving Questions (10 points each, 30 points total)

Instructions: Provide a detailed explanation for each answer.

Question 8: Explain how file extensions are used by operating systems and discuss whether they are strictly necessary. Consider legacy systems in your answer.

Question 9: Describe a scenario where using contiguous file allocation would be advantageous, and a scenario where it would be disadvantageous. Explain why.

Question 10: Imagine you are designing a file system. Describe your approach to storing file metadata (attributes). Where would you store it and why?