



**PES UNIVERSITY**

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**Department of Computer Science & Engg**

**Session: Jan-May 2021**

**UE19CS254: Operating Systems**

**UNIT 4 Question Bank**

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<b>Chapter 10: File System</b>	
1.	Consider a file system where a file can be deleted and its disk space reclaimed while links to that file still exist. What problems may occur if a new file is created in the same storage area or with the same absolute path name? How can these problems be avoided?
2.	Give an example of an application in which data in a file should be accessed in the following order: a. Sequentially b. Randomly
3.	If the operating system were to know that a certain application is going to access the file data in a sequential manner, how could it exploit this information to improve performance?
4.	Discuss in detail File operations.
5.	Explain in detail the Various File Access Methods.
6.	Explain the various logical structures of directories. List the advantages and disadvantages of each structure.
7.	List and explain the attributes of a file.
8.	What are the various ways in which protection may be provided to a file system.
<b>Chapter 11: Implementing File Systems</b>	
1.	Consider a system that supports the strategies of contiguous, linked, and indexed allocation. What criteria should be used in deciding which strategy is best utilized for a particular file?
2.	Contrast the performance of the three techniques for allocating disk blocks (contiguous, linked, and indexed) for both sequential and random file access.
3.	Why must the bit map for file allocation be kept on mass storage, rather than in main memory?
4.	What are the different methods of allocation in a File System?
5.	What is an inode and what information does it include?

6.	Discuss the various approaches to free-space management.
<b>Chapter 12: Mass-Storage Structure</b>	
1.	<p>Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk scheduling algorithms?</p> <ol style="list-style-type: none"> <li>FCFS</li> <li>SSTF</li> <li>SCAN</li> <li>LOOK</li> <li>C-SCAN</li> </ol>
2.	<p>None of the disk-scheduling disciplines, except FCFS, is truly fair (starvation may occur).</p> <ol style="list-style-type: none"> <li>Explain why this assertion is true.</li> <li>Describe a way to modify algorithms such as SCAN to ensure fairness.</li> <li>Explain why fairness is an important goal in a time-sharing system.</li> <li>Give three or more examples of circumstances in which it is important that the operating system be unfair in serving I/O requests.</li> </ol> <p>Is disk scheduling, other than FCFS scheduling, useful in a single-user environment? Explain your answer.</p>
3.	List any 4 disk scheduling algorithms. Rank them according to fairness and response time. Justify your answer.
4.	Explain why SSTF scheduling tends to favor middle cylinders over the innermost and outermost cylinders.
5.	What is meant by Disk Scheduling? Why Disk Scheduling is necessary?
6.	What are the characteristics of Disk Scheduling?
7.	What is meant by Rotational Latency and Seek Time?
8.	<p>Compare the throughput achieved by a RAID level 5 organization with that achieved by a RAID level 1 organization for the following:</p> <ol style="list-style-type: none"> <li>Read operations on single blocks</li> <li>Read operations on multiple contiguous blocks</li> </ol>
9.	Explain briefly the various levels of RAID technology.
10.	What is meant by Data Striping? Explain the different types of striping.