

4. How the deadlocks can be avoided? Explain with the help of necessary algorithms. 10
5. Explain readers and writers problem in process synchronization. 10
6. (a) Why disk scheduling is necessary ? Explain the different seek optimization techniques. 5  
(b) Describe the different mechanisms used to protect a file. 5
7. (a) Explain the design principles of Unix. 5  
(b) Write a short note on Unix file system. 5
8. (a) Explain the methods of dead lock prevention and avoidance. 5  
(b) Write briefly on fragmentation and swapping. 5

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