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Operating Systems
Fall 2009

Final Exam Test

1. What is the role of the base and limit registers? (2 points)
2. What is the difference between binding “compile time” and “load time”? (2 points).
3. What is MMU? Describe how MMU works through a simple example? (24 points)
4. Describe the algorithms for dynamic memory allocation? (4 points)
5. Which of the following is correct? External fragmentation is:
    a. total memory space exists to satisfy a request but is smaller than the process memory
    b. total memory space exists to satisfy a request but it is not contiguous
    c. total memory space exists to satisfy a request and it is contiguous
    d. total memory space is not sufficient
    e. None of these

6. Describe the page-replacement algorithms. (8 points)
7. Explain the difference between global and local replacement schemas. (4 points).
8. In a file system, what is the relationship between a block size and the fragmentation? (2 points)
9. What are the two access methods for files? For each method, write the applications that generally use these methods. (4 points)
10. What are the schemas for organizing a directory structure? (4 points)
11. Describe the in-memory structure of a file system implementation. (4 points)
12. What is a Virtual File System? Design a simple schema of VFS. (4 points)
13. How can the directory structure be implemented? (4 points)
14. How is linked allocation implemented? (4 points)
15. What are the layers of an NFS architecture? (2 points)
16. What are the major types of busses? (2 points)
17. Describe the SSTF algorithm. (4 points)
18. Describe the C-LOOK algorithm. (4 points)
19. What are the two types of replication? (4 points)

20. Describe the two types of stripping. (4 points)
21. What is the difference between DMA and Programmed I/O? (2 points)
22. Describe the three types of I/O regarding blocking. (4 points)
23. How is I/O Protection implemented? (2 points)
24. Describe data structures of the kernel. (2 points)
25. What are STREAMS? Design the STREAM structure of UNIX. (4 points)