

Quiz 12 - Optional

Course: cs241 - System Programming, CS Department

Date: May 3, 2006

Netid:

Name:

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Note: Completion of quiz is an individual effort. The quiz takes 10 minutes. The student gets additional 5 points for taking the quiz. *Each question has ONLY ONE ANSWER!!!*

1. (1 Point) In a certain system, N processes arrive at the CPU ready queue at the same time. Which of the following scheduling algorithms will give the minimum average turnaround time of these N processes (assuming that the CPU ready queue is initially empty and that no new processes arrive at the CPU ready queue before the CPU finishes these N processes)?
 - a. First-Come, First-Served
 - b. Round-Robin
 - c. Shortest-Job-First**

2. (1 Point) A process was observed to switch from running to ready state. The scheduling must be:
 - a. Shortest Job First
 - b. Preemptive**
 - c. Non-preemptive
 - d. Round Robin
 - e. None of the above

3. (1 Point) In the five philosophers' problem, consider an asymmetric solution in which every odd philosopher picks up first her left chopstick and then her right one, whereas every even philosopher picks up her right chopstick and then her left chopstick is. Is this solution guaranteed to be:
 - a. deadlock free**
 - b. starvation free
 - c. both (a) and (b)
 - d. none of the above

4. (1 Point) What is swapping?
 - a. Copying a process from one memory location to another to allow space for other processes
 - b. Copying process from disk to memory to provide page-in service
 - c. Copying process from/to memory to/from disk to allow space for other processes**

5. (1 Point) Ideally, what criteria should we use to replace pages?
- Choose the victims to achieve the highest memory utilization.
 - Choose the victims to achieve the lowest page-fault rate.**
 - Choose the victims to achieve the highest disk utilization.
6. (1 Point) What is thrashing?
- State where the system swaps out un-referenced pages.
 - State where the system decides that the degree of multiprogramming must be increased.
 - State where the system spends an excessive amount of time on paging, compared to the execution of processes.**
7. (1 Point) Why use pre-paging?
- To increase the degree of multiprogramming.
 - To reduce paging later**
 - To utilize working set information.
8. (1 Point) In the basic memory management system, consider program A and the variable a in A with the logical address 10. The base address of A is 10 and the limit of A is 100. What is the physical address of variable ' a '?
- 10
 - 20**
 - 110
 - 120
9. (1 Point) Symbolic Links can span across
- one file system
 - multiple file systems
 - both (a) and (b)**
10. (1 Point) Let us consider 32-bit pointers throughout the UNIX operating system, and the minimal block size for a file is 4K. Then the maximum file size the user can create and access in this OS is
- 2^{32}**
 - $12 \times 4K$
 - $12 \times 4K + 1024 \times 4K$
 - $12 \times 4K + 1024 \times 1024 \times 4K$
 - $12 \times 4K + 1024 \times 1024 \times 1024 \times 4K$