

## Quiz 9

**Course: cs241 - System Programming, CS Department**

**Date: April 14, 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!!!*

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1. (1 Point) What is a reallocation register?
  - (a) A base register used to give the limit value for a process.
  - (b) A base register used to give the start physical address for a process.
  - (c) A base register used to give the page offset of a page table for a process.
  
2. (1 Point) What is swapping?
  - (a) Copying a process from one memory location to another memory location 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
  
3. (1 Point) Consider basic memory management with segments, where segment is either a process or a hole between two processes. Which of the memory allocation methods performs the poorest with respect to wasted memory space.? (Note: consider the memory space utilization as the performance metric when evaluating which method performs poorest)
  - (a) First-fit
  - (b) Best-fit
  - (c) Next-fit
  
4. (1 Point) Why is there a reference bit?
  - (a) to reference that a page was read
  - (b) to reference that a page was modified
  - (c) to reference that a page was accessed
  
5. (1 Point) Consider a paging system with the page table (un-optimized, i.e., not multi-level and not inverted) stored in memory. If a memory reference takes 200 nanoseconds, how long does a paged memory reference take?
  - (a) 200 nanoseconds,
  - (b) 300 nanoseconds,
  - (c) 400 nanoseconds,
  - (d) none of the above

6. (1 Point) Consider a logical address space of eight pages ( $2^3$ ) of 1024 bytes ( $2^{10}$ ) each, mapped onto a physical memory of 32 frames ( $2^5$ ). How many bits are there in the logical address?

- (a) 13 bits
- (b) 15 bits
- (c) 8 bits

7. (1 Point) Which of the following tells the system whether or not a pager (memory manager) needs to write a page to the disk when it is replaced?

- (a) Base register
- (b) Dirty bit
- (c) Page table
- (d) Limit register

8. (1 Point) Pick a statement that is FALSE about TLB (Translation Lookaside Buffers)

- (a) It is used to save performance
- (b) Associative registers may be used to implement it
- (c) It eliminates page faults
- (d) It relies on the locality of reference principle

9. (1 Point) The idea of overlays is to keep an entire program in memory so that all data can be accessed quickly

- (a) True
- (b) False

10. (1 Point) Compaction may be used to eliminate external fragmentation

- (a) True
- (b) False