Virtual Memory

Review Questions

Section 9.1

9.1 True or False? A program does not need to be stored in memory in its entirety.

9.2 True or False? A physical address space is at least as large as a virtual address space.

Section 9.2

9.3 When does a page fault occur?

9.4 True or False? In a pure demand paged system a page is never brought into memory until it is needed.

Section 9.3

9.5 What system call initiates copy on write?

9.6 True or False? The `vfork()` system call does not use copy on write.

Section 9.4

9.7 What is the simplest page replacement algorithm?

9.8 What is the name of the page replacement algorithm that operates by replacing the page that will not be used for the longest period of time?

9.9 What page replacement algorithm could be implemented using a stack or counters?

9.10 True of False? Approximation algorithms are almost always used when implementing LRU.

Section 9.5

9.11 What is the fundamental difference between global and local page replacement?

Section 9.6

9.12 What term is used to describe the situation where a process spends more time paging tha n executing?

9.13 What term is used to describe the set of pages a process is currently referencing?

9.14 True or False? With pure demand paging, the page fault rate is initially very high.

Section 9.7

9.15 True or False? Shared memory is typically not implemented using memory mapping.

Section 9.8

9.16 Using the buddy system, if a request for 200 KB of kernel memory is made, how much is actually allocated?

9.17 What is one benefit of using slab allocation.

Section 9.9

9.18 What is the TLB reach of a system with 4 KB page sizes and 32 entries in the TLB?

9.19 True or False? 4 KB is a typical page size.

9.20 True of False? Some systems support page sizes up to 4 MB.

Section 9.10

9.21 What page replacement algorithm is used by Windows?

9.22 Solaris uses the clock algorithm variation of LRU. How many hands does this algorithm employ?