CPE 434/534 Homework Assignment 3

Due Tuesday, Oct. 6th

Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Attach this sheet to your submission as the cover page.

1. \_\_\_\_\_(3 points) Assume a 32 bit virtual address with a three level page table indexed by fields of 7, 7, 6 bits with a 4k page size (12 bits).
2. \_\_\_\_(1 point)What is the size of the page table structure for the smallest program
3. \_\_\_\_(1 point)What is the size of the page table structure for the largest program
4. \_\_\_\_(1 point)How would this change if you used fields of 6, 7, 7 bits instead of 7, 7, 6 bits
5. \_\_\_\_\_ (4 points) Assume you have two processes, a, b, with a shared memory segment of several pages.

a-\_\_\_\_\_(1 point) if a page fault occurs in process’s a shared memory segment, should you update process’s b’s shared memory segment page tables accordingly. Remember, the page tables are distinct for each process, even if they point to the same memory locations.

B\_\_\_\_\_(1 point) if so, what kind of structure would you use to keep track of the shared pages for this purpose

C- \_\_\_\_(1 point) how would your answer change if the page were shared by hundreds of processes

d-\_\_\_\_(1 point) how would this change for shared libraries

3- \_\_\_\_\_\_ (2 points) text 3-11

4- \_\_\_\_\_\_(2 points) text 3-16

5- \_\_\_\_\_(2 points) while you cannot predict the future use of pages, some computer systems allowed the programmer to predict the future address space footprint so the system could prepage the requested pages. Programmers, however, are sometimes confused and sometimes lie. How would you reduce the effect of these two possible errors in the predictions of the programmer

6- \_\_\_\_\_(two points) text 3-28

For all solutions, SHOW YOUR WORK. Answers without supporting computations will not receive credit.

Total Grade \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_