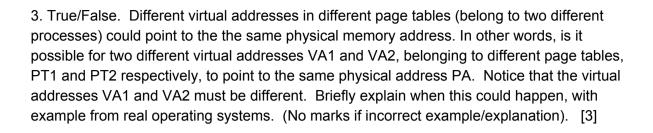
## COL331/COL633 Minor2 Exam Operating Systems Sem II, 2016-17

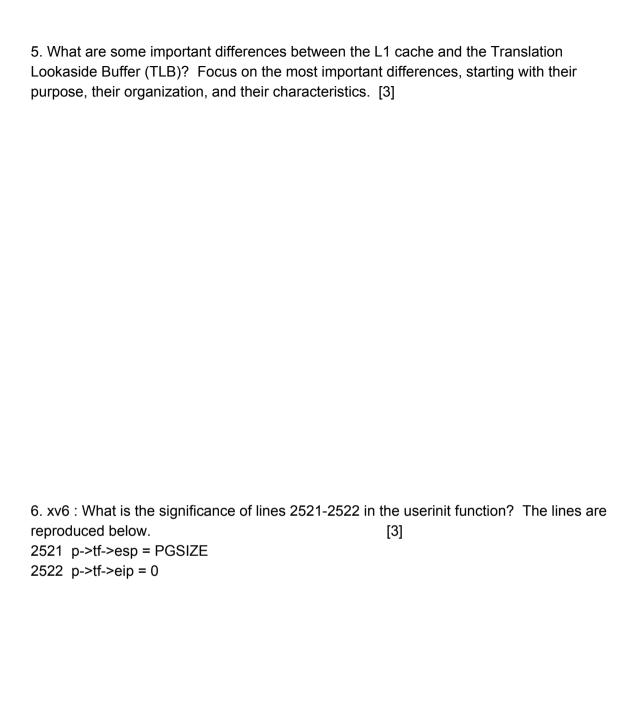
Answer all 8 questions Max. Marks: 25

1. True/False. Copy-on-write allows faster implementation of UNIX's fork() system call. Briefly explain. (No marks if incorrect explanation). [2]

2. True/False. Different virtual addresses in the same page table (belonging to a single process) could point to the same physical memory address. In other words, is it possible for two different virtual addresses VA1 and VA2 (both in the same page table PT) to point to the same physical address PA. Briefly explain when this could happen, with example from real operating systems. (No marks if incorrect example/explanation). [3]



4. Mention two advantages of paging over segmentation, and two advantages of segmentation over paging (briefly). [2]



7. xv6 : Explain the function argint(int n, int \*ip) on line 3545.

What is 'n' [0.5]What is 'ip' [0.5]

• Why is it calling fetchint(proc->tf->esp + 4 + 4\*n, ip) [2]

What does fetchint() on line 3516 do? Explain the two checks on line 3519. Why are they needed? Do we need two checks, or would one check suffice? [2]

8. xv6: Look at line 3073 in the kfree() function:

3072 //Fill with junk to catch dangling refs 3073 memset(v, 1, PGSIZE)

The comment says that this call to memset() is supposed to fill the memory region with junk to catch dangling references. What is a dangling reference? Briefly give an example of how this command will help to catch a dangling reference. Will the xv6 kernel run correctly if this line (line 3073) is commented out?

[4]