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Run-time Environment of XINU Processes and Static Priority Scheduling

Problem 4

OUTERB: 5

INNERB: 10,000,000

4.1

Yes the 'P' characters seemed to be interleaved within the outputs of the children processes. Because the priority of all the processes are 20 and INITPRIO (the priority value of the parent process main) is also 20, they will take turns using the CPU with round-robin with the QUANTUM value (10 milliseconds).

Output: PAPBPCPDABCDABCDABCDABCD

4.2

The process printing D has a higher priority value so therefore the process printing D takes priority and prints first before anything else in the parent process is executed (static priority scheduling so will finish executing before moving onto process of lower priority value).

Output: PAPBPCPDDDDDABCABCABCABC

4.3

The process printing C also has a higher priority value now (the same as the process printing D) so it will be prioritized over processes with a lower priority value.

However because the priority value of the process printing C is greater than the parent process priority, that means that the process printing C will finish executing before anything continues (because kprintf and resume are part of the parent process, they will have to wait until process printing C is done). Only when it finishes will kprintf and resume will be called in the parent process. And then the same thing happens with the process printing D.

Output: PAPBPCCCCCPDDDDDABABABAB