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1. Problem Set

1.
The instructions should be privileged for an OS to function properly include (a), (d), and (e).
For (a), if a user program can set value of timer casually, it can reset the timer to its own advantage, and thus uses most of CPU resources.
For (d), if a process turns off the interrupts, many of other process functions will be disabled and it can monopolize CPU resources.
For (e), since I/O devices can be shared by all users, the OS must prevent user program from gaining control in monitor mode.
As for (b) and (c), each programs are supposed to have abilities doing these two instructions.

2.
The purpose of interrupts is to remind CPU to switch to interrupt processing from user process executing.
Interrupts are generated by hardware, while traps are generated by software.
Traps can be generated intentionally by user programs for system call.

3.
Though CPUs load the same data residing in memory, if one of CPU update the value of data after executing some processes, values in other local cache won't be changed, thus cause different value of data in different local cache.