CS2006 – Operating System

Fall 2023

ID: _____   Name: _____
Quiz #:   1   Instructor :   Sanaa Jeehan
Marks: 10   Date: 14th September, 2023

1. **How does a CPU know about the mode in which it is running?**   (2)
   By looking at the value of Status Register (or Flag Register or Program Status Word or Condition Code Register).

2. **Explain the purpose of Timer Interrupts.**   (2)
   To ensure that Operating system will get control after certain amount of time. *It is crucial for Preemption, kill a program and OS's chance to poll hardware.*

3. **What is the difference between Mode Switch & Context Switch?**   (3)
   In mode switch, the mode of CPU is changed from Kernel to User to User to Kernel. *Normally it is done in order to execute a high privileged instruction.* Context switch on other hand is changing state of one process from running to either blocked or ready, and bringing another process from ready state to running.

4. **Explain the creation of a new process in Posix compliant operating systems.**   (3)
   There are two ways of doing so.
   - Fork( ): Using this method, an already running process can be cloned into two. *Cloned process, called the child, will have access to same memory of that of its parent process. Both Parent and child processes will continue to run.*
   - Execve( ): This method can be used to create a totally new process with new memory allocation. *The method from which execve( ) is called will be ended after handing over the necessary allocations to the child process.*