**Operating System | CSC 227**

**Home Work 1**

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**1) Describe in details three main activities of an operating system in regard to:**

**a. memory management.**

1. keep tracks of which part of memory are currently being used and who is using them
2. Deciding which processes (or part of process) and data to move into and out of memory
3. Allocating and deallocating memory spaces as needed

**b. process management**

1. Creating and deleting both User/System processes
2. Suspend and resume processes
3. Providing mechanism for processes synchronization

**2) Discuss whether the virtual memory and the time sharing need to be supported by the operating system for a handheld devices or not**

Handheld devices should be useful for the user , in which he can run multiple programs at the same time , that won’t happen without Time Sharing which allow user to run multiple programs that are going to be stored in main memory as process then CPU switch among them frequently that user can’t notice .

Of course main memory in handheld devices are small that can’t accommodate all programs to stored as processes or some programs have large size that can’t fit in memory , therefore Virtual Memory is necessary to make handheld devices more flexible and efficient .

**3)** **Identify three main advantages and one disadvantage of using multiprocessor systems.**

Advantages:

* Increased throughput
* Economy scale
* Increased reliability

Disadvantage:

* Complex Operating System is required

**4)** **Explain how does the CPU know when the memory operations are complete**

The Device controller send interrupts to the CPU

**5) What is interrupt handler? Give some examples of different interrupt.**

* Interrupt handler : also known as interrupt service routine(ISR) in which each routine is specified for special interrupt
* Examples of interrupts:{Timer interrupt , Software interrupt `also known as Trap` , I/O interrupt , Hardware interrupt }

**6)** **What are the main differences of network, parallel and distributed operating systems?**

**HEEEEERE**

**7)** **Why dual mode operation is important for operating systems?** To ensure proper operation, we must protect the operating system and all

the programs and their data from any malfunctioning program.

The protection is accomplished by designating some of the machine

instructions that may cause harm as "privileged" instructions.

Dual mode operations can protect the OS from errant users, and the users from one another.

**8) Explain in details Figure 1.5 of the textbook**