CSE321
Take Home Exam 1
Marks: 10

1.	**Describe** the requirements of multiprogramming	**2**
2.	**Explain** the loading of the operating system into memory during booting	**2**
	Bootstrap Program: When a computer system is powered up or rebooted, the initial program that runs to start the system is called the bootstrap program or bootstrap loader. The bootstrap program is typically stored in firmware (e.g., ROM or EEPROM) and is responsible for locating the operating system kernel, loading it into main memory, and initiating its execution. Bootstrap Process: The bootstrap program is executed by the CPU upon system startup. It performs basic hardware initialization, such as setting up system registers, initializing devices, and configuring memory. The bootstrap program locates the operating system kernel on a storage device (e.g., hard disk) and loads it into main memory for execution. Loading the Kernel: Once the bootstrap program has identified the location of the operating system kernel, it reads the kernel image from the storage device into a specific area of main memory. The kernel image is loaded into a reserved portion of memory known as the kernel space, where it can access system resources and manage hardware components.	
3.	Which OS structure is more extensible? **Explain** why.	**2**

4.	**Discuss** the protection of the operating system using dual-mode operation	**2**
5.	**Explain** the main challenge in multiprocessor systems	**2**