**Who can support RAID functionality? What is it?**

SCSI and SAS controller support RAID.

Redundant Array of Inexpensive Disks allows data storage across multiple hard drives. Reduced data loss and improved performance.

**What is a file system? Why is important for an operating system?**

File system controls how data is stored and retrieved.

Without it all the data would be stored in a large chunk with no way to know where a specific file is.

**Why is it interesting the critical section?**

Group of cooperating processes only one process can be executed in its critical section

**How many processes can run at the same time in a computer environment?**

It depends on the number of cores of the CPU and if it has multithreading

**Write down the case of “Eating philosopher”**

They need 2 forks to eat. All philosophers can access forks near their plate. They think then eat. They must have both forks to eat. They put down their forks after finishing eating.

**What are the differences between “User mode” and “Kernel mode”?**

Kernel mode reserved for lowest most trusted functions of the OS, crashes are catastrophic.

User mode has no ability to directly access hardware or reference memory.

**What is preemptive operating system? Example**

Kernel takes back CPU after some time and gives it to next process.

Windows and Linux

**Describe the role of the MMU**

Memory management unit handles all memory and caching operations associated with processor.

**When do deadlocks occur? What is it**

When the waiting process is holding on to resource that the first needs before it can finish.

Two programs sharing the resources prevent each other from accessing the resource.

**What is the operating system virtualization?**

Allow system hardware to run different OS at the same time on one computer.

**What is the difference between “Ready to run” and “Blocked” state?**

Ready to run: temporarily waits for the CPU time frame.

Blocked: cannot continue its execution

**Write down the case of “Readers-Writer” problem?**

Multiple processes want to access the file to read or write. To solve it writers have exclusive access.

**Can we replace a CPU with microcontroller?**

Not yet, but they are starting to replace older pc CPUs.

**What is the kernel in an operating system?**

Central part of the OS. It manages the hardware like CPU and memory.

**Does a CPU have registers? What are they?**

Yes, quick accessible location for the CPU that hold small data or storage address

**When can occur a “starvation”? What is it?**

Running process does not get enough resource for a long time.