NAME: Shafqat Ali Rafaqat

Semester 5, Section A

Roll Number: FA14-BSCS-10

Date: 24 Oct, 2016

ASSIGNMENT

Q1: Define Kernel mode and user mode. Explain their working.

In Kernel mode,the executing code has complete and unrestricted access to the underlying hardware. It can execute any CPU instruction. It reserved for the lowest-level,most trusted functions of the operating system.
User mode the executing code has no ability to *directly* access hardware or reference memory. Code running in user mode must delegate to system. Most of the code running on your computer will execute in user mode.

Q2: Timers could be used to compute the current time. Provide a short description of how this could be accomplished?

A program could use the following approach to compute the current time using timer interrupts. The program could set a timer for some time in the future and go to sleep. When it is awakened by the interrupt, it could update its local state, which it is using to keep track of the number of interrupts it has received thus far. It could then repeat this process of continually setting timer interrupts and updating its local state when the interrupts are actually raised.

Q3: Distinguish between the client–server and peer-to-peer models of distributed systems.

In a peer-to-peer network computers communicate directly with each other (after finding each other) as opposed to communicating through a central server whose failure or downtime would break communication, potential to intercept traffic, or slow down communications.

So in a P2P network, if I want to send you a file, the transfer would occur from my computer to your computer.

In a client/server architecture, you'd upload the file to a server and I'd download the file from that server.

Q4:Some CPUs provide for more than two modes of operation. What are two possible uses of these multiple modes?

It can be used to indicate when a virtual machine is in control of the system. The *virtual machine manager (V MM)* needs more privileges than the user and less than the kernel, so a new mode could be used for that.

It would also provide more security if you had more than two modes, most likely. For example like how on most operating systems you can have an administrator, a named user, and a guest profile-- you could determine what kind of user you're dealing with on a computer with more modes.

Q5: Describe the trade-off between RAM and Hard disk?
Ram usually trade data and information between hard drive. When cache fails to achieve task given by CPU. Cache access RAM to complete task and RAM also fails then RAM page between hard and complete the task.

Q6: Describe the difference between clustered oriented operating system architecture and standalone architecture?

A: Clustered oriented operating systems are those which are able to manage multiple system connected together this concept involve parallel processing. Whereas standalone systems are those which we run on desktops for personal use. They usually use multi programming instead of parallelization.

Q: What is the purpose of registers in Processor?

A: CPU registers perform a variety of functions, a primary one of which is to offer temporary storage for the CPU to access information stored on the hard drive. Every CPU register has a distinct function and the registers are essential components of CPU commonly recognized for memory allocation purposes.

Q: Describe multiprocessor systems and their benefits?

A: Multiprocessor systems allow multiprocessor that work together to perform task fast. It allow multiple processors. It effects the Process time of any task.

Q: Define parallel processing?

A: Parallel processing is the processing of program instructions by dividing them among multiple system or processors with the objective of running a program in less time.