1. What is the Instruction Execution Cycle?

Ans: When machine language receives an instruction, it performs certain tasks in a particular order and this phase is called Instruction Execution Cycle. CPU performs some steps during Instruction Execution Cycle. First it gets the instruction. After that it decodes the information. Then it gets the operand if necessary. Then it performs ALU operation and updates relevant flags. After that it updates register file. At last it stores the result of the operand.

1. What is the duration of a single clock cycle in a 3 GHz processor?

Ans: 1/3,000,000,000th of a second is the duration of a single clock cycle in a 3 GHz processor.

1. Name all eight 32-bit general-purpose registers.

Ans: All eight 32-bit general-purpose registers are EAX, EBX, ECX, EDX, ESI, EDI, ESP, or EBP.

1. What special purpose does the ECX register serve?

Ans: Loop counter is the special purpose the ECX register serves.

1. Which flag is set when an arithmetic or logical operation generates a negative result?

Ans: Sign Flag is set when an arithmetic or logical operation generates a negative result.

1. Which type of RAM is used for CPU cache memory?

Ans: SRAM is used for CPU cache memory.

1. What is the function of the PCI Express Bus?

Ans: the PCI Express Bus provides “two-way serial connections between devices, memory and the processor”.

1. What are the access levels for input-output operations?

Ans: Application program has level 3. OS function has level 2. BIOS function has level 1. Hardware has level 0.

1. Of the three levels of input/output in a computer system, which is the most portable?

Ans: Application program is the most portable.

1. Is it likely that the BIOS for a computer running MS-Window would be different from that used by a computer running Linux?

Ans: BIOS is not dependent on OS function. So, it does not matter which OS function is running on the computer.

1. Why are the device drivers necessary, given that the BIOS already has code that communicates with the computer's hardware?

Ans: BIOS know how to interact with the processor and few devices which are already in the chipset, but it needs device driver when we want to use a new device on the computer to tell the computer what exactly it needs to do. Device drivers allows the operating system to communicate with the hardware devices and the BIOS directly.

1. Which level of programming would be used send and receive data from hardware ports?

Ans: Level 0 would be used send and receive data from hardware ports.