CSC 137 Cokgor – Interrupts Exercises

1) What is an interrupt

2) What is interrupted by an interrupt?

3) What is called by an interrupt?

4) Why do interrupts free up time for the microprocessor?

5) What is an interrupt vector?

6) What is the area of the memory where the interrupt vectors occupy is called?

7) What are the two main type of interrupts?

8) How does the processor receive an external interrupt?

9) List the events that occur when an interrupt becomes active (assume a generic processor):

10) What is a Non-Maskable Interrupt?

1) What is an interrupt

An interrupt is a hardware- or software-initiated subroutine call.

2) What is interrupted by an interrupt?

The currently executing program is interrupted by an interrupt.

3) What is called by an interrupt?

Interrupt Service Routine (Interrupt Handler or Interrupt Service Procedure are alternative terms)

4) Why do interrupts free up time for the microprocessor?

Interrupts only use computer time when the interrupt is activated.

5) What is an interrupt vector?

An interrupt vector contains the address of the Interrupt Service Routine.

6) What is the area of the memory where the interrupt vectors occupy is called?

Interrupt Vector Table.

7) What are the two main type of interrupts?

Internal interrupts (e.g. system calls, faults) and external interrupts (hardware interrupts).

8) How does the processor receive an external interrupt?

The processor receives an external interrupt via one or more of its interrupt pins.

9) List the events that occur when an interrupt becomes active (assume a generic processor):

a. the critical registers (e.g. the status register, program counter) are pushed onto the stack,
b. the interrupt vector is fetched from the interrupt vector table,
c. the interrupt service routine is accessed through the vector address,
d. at the end of the interrupt service routine, the critical registers are restored
e. the processor continues executing the program before the interrupt.

10) What is a Non-Maskable Interrupt?

A Non-maskable Interrupt, NMI for short, is an interrupt that cannot be disabled. NMI is used when a major system fault occurs, such as power loss.