End Of Chapter 9 Exercises

Q1) What is polling used for? What are the disadvantages of polling? What is a better way to perform the same job?

Ans:- Polling is used by CPU for continuously checking the various input devices to determine that input data is waiting. The disadvantage of it is that if there are too many device need to be check, it will cost a lot of CPU time even some of them may not be checked forever. The better way is use interrupts. This method free the CPU from checking the carious input devices.

Q2) In general, what purpose does an interrupt serve? Stated another way, suppose there were no interrupts provided in a computer. What capabilities would be lost?

Ans:- The purpose of interrupt is to deal with some special cases when the program ran to some specific situation. If no interrupts provided in a computer, the computer will lose the ability of process the error situation. For instance, if a program ran into an infinite loop, it triggered software interrupt and stop the program to avoid unnecessary cost. Another situation is the normal interrupt provided a better way to get input data than polling. The program interrupted when it needs input. Then the input device gives the input data to the system and stop the interrupt, then the program continues.

Q3) ”If my CPU runs at 4.0GHz, and on average takes 10 clock cycles to complete an instruction, how many instructions will be completed in the time it takes to type "MY CPU IS RUNNING NOW"? Assume it takes 5 seconds to type the message. Show your work and how you arrived at the solution”.

Ans:- Cycles/Instruction is 10 , Cycles/Second = 4GHz=4000000000Hz

So, Instruction per Second will be 4000000000/10 = 400000000

As it is taking 5 second to type the message, the instructions that will be completed in the time to type “MY CPU IS RUNNING NOW” will be = 5\*400000000 = 2000000000.