Assignment 4

Q1)

⇒ An interupt is a conditon that holts the microprocessor temporarily, to work on a different task & retun to its previous task.

- It is an event or signal that requests to attention of CPU.
- This halt allows peripheral devices to access the microprocessor

Different types of interupts in 8086 microprocessor:

1) Hardware Interrupt:

Hardware interupt are those interupts which are caused by any peripheral devices by sending a signal through a specified pin to the microprocessor. These are 2 hardware Interuppts in 8086 Microprocessor.

A) NMI (Non-maskable interupt): It is a single pin non-maskable hardware interuppt which cannot be disabled. It is the highest priority interupt in 8086 microprocessor After its execution, this interupt generates a Type 2 interupt.

B) INTR (Interupt Request): It provides a single interupt request & its activated by I/O port. This interupt can be masked

or delayed. It is a level trigered interupt. It can receive any interupt type.

Software Interrupt: These are instructions that are inserted within the program to generate interupts.

- There are 256 software interrupts in 8086 microprocessor.
- The instructions are of the format INT type where type ranges from 00 to FF
- The starting address ranges from 0000H to 003FFH.
- These are 2 byte instructions IP is loaded from type *04H & CS is loaded from the next address given by (type *04) + 02H

Some important ones are:-

A) TYPE 0 corresponds to division by 0
B) TYPE 2 corresponds to NMI is used in power failure conditions
C) TYPE 3 represents a break-point interupt
D) TYPE 4 is the overflow interupt

Q2) Advantages

1) Debugging & Verifying: Looking at compiler generated assembly code or the disassembly window in a debugger is useful for finding errors & compiler optimizers
2) It can access machine-dependent registers & I/O
3) It allows optimizations for memory allocation, threading etc.
4) Builds interfaces between code fragments using conventions
5) Access to unusual programming modes of your processor
6) Complete control of the code
7) Assembler can detect errors & produce required message