**ASSIGNMENT 1**

1. Extract the blocks of Registers, Instruction Queue and the flags from the internal architecture of 8086.Draw them with complete details on it. Explain the importance of them in the 8086 programming.
2. Assume that you have read two single digit BCD numbers through the K/B and these numbers are stored in memory. Write an ALP to add and subtract these values without modifying the numbers and keep the result in unpacked BCD format (use appropriate instructions). Give an example for each at the end of the program. Also write the input and the expected output how it appears in memory location according to your program.
3. Explain the importance of Instruction Queue in 8086.

Write an ALP to have a 16-bit number (given as 81D2H) in the memory location. This given number is the result of summation of two BCD numbers. With appropriate instructions in your program convert it to BCD and store the result in memory. Assume that AF got set and CF was reset while addition. Show your calculation as it is done by the processor.

1. Explain the flag registers associated with 8086.

Assume that you have two 8-bit binary numbers in the memory locations. Perform the multiplication of them assuming the numbers as unsigned and signed numbers. The products obtained in either case needed to be logically ORed and then 2’s complement of ORed result has to be found and to be stored in memory. Write an ALP to meet the above specification. Show your calculation by taking suitable examples as it is done by the processor.

1. Discuss all the instructions associated with flags of 8086.

It is required to perform a division of signed 32-bit number by a signed byte. Write an ALP to meet the above division. Also write the input and the expected output how it appears in memory location according to your program.