8086 PROGRAMMING

Q 1) **WAP to ADD two 16 bit numbers.**
Operands and the result should be in the data segment.

```
Data  SEGMENT                  // Starts a segment by the name Data

      A      DW    1234H       // Declares A  as 16-bits with value 1234H
      B      DW    5140H       // Declares B as 16-bits with value 5140H
      Sum    DW    ?           // Declares Result as a 16-bit word
      Carry  DB    00H         // Declare carry as an 8-bit variable with a value 0

Data  ENDS

Code  SEGMENT

      ASSUME CS: Code, DS: Data  // Informs the assembler about the correct segments

      MOV   AX, Data           // Puts segment address of Data into AX
      MOV   DS, AX             // Transfers segment address of Data from AX to DS

      MOV   AX, A              // Gets the value of A  into AX
      ADD   AX, B              // Adds the value of B into AX
      JNC   Skip               // If no carry then directly store the result
      MOV   Carry, 01H         // If carry produced then make variable "Carry=1"
Skip: MOV   Sum, AX            // Store the sum in the variable "Sum"

      INT3                     // Optional Breakpoint

Code ENDS

      END
```

Q 2) **WAP to ADD two 16 bit BCD numbers.**
Operands and the result should be in the data segment.

```
Data SEGMENT

      A      DW     1234H
      B      DW     5140H
      Sum     DW    ?
      Carry  DB     00H

Data  ENDS

Code  SEGMENT

      ASSUME CS: Code, DS: Data

      MOV    AX, Data
      MOV    DS, AX

      MOV    AX, A
      MOV    BX, B
      ADD    AL, BL
      DAA
      MOV    AL, AH
      ADC    AL, BH
      DAA
      JNC    Skip
      MOV    Carry, 01H

Skip: MOV    Sum, AX

      INT3

Code ENDS

      END
```

☺ **For doubts contact Bharat Sir on 98204 08217**