Time: 3Hours **Total Marks: 80**

N.B:

1. Question no.1 is compulsory.
2. Attempt any three questions out of the remaining five.
3. All questions carry equal marks.
4. Assume suitable data, if required and state it clearly.

Q.1 answer any four. [20]

a) Explain the use and advantage of pipelining feature in 8086 architecture.
b) Explain arithmetic instructions of 8051 microcontroller with example.
c) Explain physical address in 8086 processor.
d) Compare Minimum mode and Maximum mode.
e) Compare Microprocessor and Microcontroller.

Q.2 a) Explain the following 8086 instructions with example. [10]
i) CMPSB ii) DIV AX iii) LOOPE again iv) REP SCASB v) XLATB
b) Explain block diagram of 8255 PPI. [10]

Q.3 a) Explain addressing modes of 8051 [10]
b) Write an assembly program to divide a 16-bit number by an 8-bit number. [10]

Q. 4 a) Explain types of interrupts and ISR in 8086. [10]
b) Write 8051 assembly language program to checks whether the ten numbers stored from external RAM memory address, 2000H are odd or even. The program should store accordingly 00H/FFH from internal location 30H onwards. [10]

Q. 5 a) Explain the block diagram of 8259 Programmable Interrupt Controller in detail. What are different operating modes of 8259 PIC. [10]
b) Write an 8051 assembly program that uses Timer 0 to generate a delay of 1 second. Use this delay to toggle an LED connected to Port 0. [10]

Q. 6 Write short note on (Any 3) [20]

1. Memory segmentation
2. Interfacing of a DC motor to microcontroller.
3. ICW's and OCW's in 8259
4. 8284 clock generator