

**MICROPROCESSOR & MICRO CONTROLLER THEORY & APPLICATION**

Full Marks-70

Time-3 Hours

(Answer any **SIX** questions including Question No.1 which is compulsory)  
The figures in the right hand margin indicate marks.

- Q.1 (i) Find the time needed to execute 8085 STA 2000H instruction. [2x10]  
(ii) Find intermediate values of remainder and quotient in third iteration in 8085 if 54H is divided by 09H using shift and subtract method.  
(iii) Mention the number of address and data pins of 6264 RAM chip.  
(iv) Find the status of 8255 PC pin if BSR mode control word is 07H.  
(v) Specify 8086 default segment and offset register pair.  
(vi) Show the status of the C, AC, and P flags after addition of 38H and 2FH in 8051.  
(vii) Mention first sixteen interrupt types present in 8086.  
(viii) Name the SFRs of 8051.  
(ix) Write a program in 8051 to save accumulator in R7 of bank2.  
(x) Find machine code of 8086 MOV BL, CL instruction if operation code field byte is 88H.
- Q.2 (a) With timing diagram show the data transfer in the execution of 8085 CALL 2000H instruction. [5]  
(b) Write 8085 program for addition of two number of two byte BCD numbers. [5]
- Q.3 (a) Write 8085 program to find a delay of five milliseconds. [5]  
(b) Interface four switches and four LEDs to 8085 through 8255. [5]
- Q.4 (a) Generate a square wave using DAC interfaced to 8085. [5]  
(b) Discuss ICW<sub>1</sub> and ICW<sub>2</sub> of 8259. [5]
- Q.5 (a) Discuss the architecture of 8051. [5]  
(b) Assume that bit P2.3 is an input and represent temperature of an oven. Write a program in 8051 to monitor the bit continuously. Whenever it goes high, send a pulse to port P1.5 to turn on a buzzer. [5]
- Q.6 (a) Write a program in 8051 to convert ASCII number to packed BCD number. [5]  
(b) Discuss the addressing modes of 8051 with suitable examples. [5]
- Q.7 (a) Discuss the minimum mode block diagram of 8086. [5]  
(b) Write 8086 program to transfer ten data words from source memory offset address 2000H to destination memory offset address 3000H. [5]
- Q.8 (a) Discuss the 8086 Instruction Register format. [5]  
(b) Write 8086 program for addition of two 3x3 matrices. [5]