B.E. Electronics & Telecommunication / Communication Engineering Fourth Semester

ET 402 - Microprocessor and Interfacing

P. Pages : 2 **GUG/W/18/1560**

Time : Three Hours * 1 2 2 9 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.

1. a) What do you mean by Timing Diagram ? **8**
Define :
i) Instruction Cycle
ii) Machine cycle
iii) T-states
What is the necessity to have two status lines S_1 & S_0 in μp 8085.

b) Draw Timing Diagram of DCRM. **8**

OR

2. a) Write an assembly language program for the multiplication of two 8 bit numbers using shift and add method. **8**

b) State addressing modes number of bytes, T-states required flag required for the following instructions : **8**

i) XTHL	ii) POP PSW
iii) ANI	iv) LXIH
v) JMP	vi) RLC
vii) LDA	viii) INXH

3. a) Write an assembly language program to generate a delay of 0.4 sec if the crystal frequency is 5 MHz. **8**

b) Design a microprocessor system for the 8085 μp such that it should contain 16 KB of EPROM and 4 KB of RAM using two 8 KB EPROM and two 2 KB RAM. **8**

OR

4. a) Assuming the μp 8085 is completing RST7.5 request. Check to see if RST 6.5 is pending. If it pending enable RST6.5 without affecting any other interrupt. Otherwise return to main program. **8**

b) Write accurate delay program for 400 μsec. Use clock frequency of 4 MHz. **8**

5. a) Connect 8255 PPI with μp 8085 in memory mapped configuration. **8**

b) Connect 8251 USART with μp CPU such that the data port address is COH and control post address is CHH. **8**

OR

6. a) Write the initialization instructions for 8259 PIC to meet the following specifications : **8**
i) Interrupt vector address = 2090H
ii) Call address interval will be = 8B
iii) Use fully nested mode.

b) Explain square wave generator mode of 8253 PIT. **8**

7. a) Interface 8 bit DAC 1408 with μp for the port address FFH using 7H373. The reference voltage should be 5V. Find its resolution. Find the O/P voltage for the digital I/Ps 00H, 80H, FFH. What is the conversation time of DAC. **8**

b) Design a sawtooth waveform using DAC 1408 with a resolution of 10MV, port address is 0BH. Write a program for generation of sawtooth waveform. **8**

OR

8. a) An ac signal sample is to be converted to digital form. Using ADC 0809, show complete interfacing and write a program for the same. Store the digital O/P at memory location C50AH. Use P_B to read data. **8**

b) Design suitable 8 bit digital to analog converter and 8085 interface. Write an assembly language program to generate square wave with ON time of 1msec at output of Digital to Analog converter. The output should be between -1.28V and +1.28V. **8**

9. a) State the relation between the number of address pins and physical memory space ? What is tristate logic ? Why it is needed in a μp system ? **8**

b) How is clock signal generated in 8086 ? What is the maximum internal clock frequency of 8086 ? How is READY signal used in a μp system ? **8**

OR

10. a) Explain flag register of μp 8086. **8**

b) Write an assembly language program to find square of any eight bit number. **8**

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