S.Y.B.E. (Electronics & Communication / Electronics & Telecommunication Engineering) Sem. - IV ET 402

Microprocessor and Interfacing

P. Pages : 4

Time : Three Hours Max. Marks : 80

Notes : 1. All questions carry a marks as indicated.
2. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain the following instructions of μp 8085 **6**

i) DAD D ii) STAX D
iii) XRA B iv) MVI M, data-8
v) XCHG vi) MOV A, M

b) Draw and explain timing diagram of LDA 3500H. **6**

c) Which are the basic control signals of 8085? How do you generate $\overline{MEMR}$, $\overline{MEMW}$, $\overline{IOR}$, $\overline{IOW}$ from these signals. **4**

OR

2. a) Write an assembly language program to count number of 1's in an 8-bit number stored in memory location 4000H and place the result in location 3FFFH. **6**

b) Draw and explain the architecture of 8085 μp. **10**

3. a) Explain various address decoding techniques used in memory interfacing. **6**

b) Explain the interrupt structure of 8085. **6**

c) Write a program to mask RST 6.5 and RST 5.5 interrupts and enable RST 7.5 interrupt. **4**

OR

4. a) If the operating frequency of CPU 8085 is 2 MNz. Write a delay program for 1000μs delay. **6**

b) Draw a memory map to interface the following memory devices. **10**

i) 2 K $\times$ 8 EPROM using 1K $\times$ 8 EPROM

ii) 2 K $\times$ 8 RAM using 1 K $\times$ 8 RAM

The EPROM should start from location 0000H and RAM at 1800H.

Also draw the entire memory interfacing diagram.

5. a) Explain Mode 0 and Mode 1 of 8255. With timing diagram. **6**

b) Explain the following terms related with serial transmission of data. **6**

i) Full duplex

ii) Half duplex

iii) Simplex

c) What is the use of mode set register of 8257 DMA controller. **4**

OR

6. a) Explain the interfacing of stepper motor with 8255. Also write a program to rotate stepper motor in clockwise direction continuously. **10**

b) Explain the following DMA signals **6**
i) HOLD
ii) HLDA
iii) DACK

7. a) Explain the following terms used in ADC **4**
i) resolution
ii) Conversion time

b) Design an output port with address FFH to interface DAC. Also write a program to generate a continuous RAMP waveform. **9**

c) Explain the need of Analog to digital conversion and vice-versa. **3**

OR

8. a) Explain the application of ADC in temperature measurement with neat interfacing diagram. **10**

b) Explain the interfacing of DAC with 8085. **6**

9. a) Explain the following signals of 8086. **4**

i) NMI ii) M/ $\overline{IO}$

iii) READY iv) $\overline{LOCK}$

b) Explain the concept of even bank and odd bank memory in 8086. **6**

c) Explain the following instruction of 8086. **6**

i) CMP ii) MOV AL, [SI]

iii) JNZ iv) ADC

v) MUL vi) RET

OR

10. a) Write an 8086 program to generate Fibonacci Series. **8**

b) Write down the addressing mode for each of the following instructions. **8**

i) MOV AL, 05 H

ii) MOV AX, BX

iii) MOV AX, [BX] [SI]

iv) MOV BL, 50 [BX] [SI]

v) ADD BX, [5000H]

vi) SUB CX, [BX]

vii) MUL BL

viii) MOV CX, [SI]

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