B.E. / B.Tech. Electronics & Communication / Telecommunication Engineering
(Model Curriculum) Semester-IV
SE205 - Microprocessor and Microcontrollers

P. Pages : 2

Time : Three Hours

2325

Max. Marks : 80

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

1. a) Enumerate the Flag register format or µp 8085 and discuss the significance of each flag. **6**

b) What is addressing mode? Explain various addressing modes of µp 8086 with example. **10**

OR

2. a) Draw the timing diagram for the instruction SHLD 2000H of µp 8085. **8**

b) Explain the function of following pins of µp 8086 **8**
i) LOCK   ii) QS0, QS1
iii) RQ/GT   iv) BHE

3. a) Describe in detail along with diagram Mode-0, Mode-1 and Mode-2 of IC 8254. **8**

b) Interface 8251 USART with µp 8086 such that the port addresses start from 80H. Draw the complete interfacing diagram. **8**

OR

4. a) Explain the CWR format of IC 8255 in BSR mode. Write subroutine for µp 8085 to set and reset PC4 continuously. Assume delay routine of 1 msec is available. **8**

b) Interface an 8-bit ADC 0800 to µp 8085 in I/O mapped I/O. Write an ALP to take analog data as input at an interval of 1 msec, convert it to Digital and store at memory location C200H. **8**

5. a) Draw and explain flag register of µp 80286. **8**

b) Explain the following pins of µp 80386. **8**
i) PEREQ   ii) BS16
iii) ADS   iv) NA

OR

6. a) What is pipelining? Explain 3-stage pipelining? What are the different hazards in pipelining. **8**

b) Draw and explain the architecture of µp 80486 **8**

7.	a)	Find the size of the delay in following program, if the crystal frequency is 11.0592MHz DELAY: MOV R3,#200 HERE: DJNZ R3,HERE RET	**4**
	b)	Explain different addressing modes of μc 8051, with example.	**6**
	c)	Write an ALP for UC 8051 to add two 32- bit numbers. The numbers are stored from RAM location 40H & 50H respectively store the result from RAM location 60H.	**6**

OR

8.	a)	Explain the difference between MOV, MOVX & MOVC instruction of μc 8051 with example.	**4**
	b)	Write ALP for UC 8051 to perform the following (i) Keep monitoring the P1.2 bit until it becomes high; (ii) When P1.2 becomes high, write value 45H to port 0; (iii) Send a high-to-low (H-to-L) pulse to P2.3.	**6**
	c)	Draw and explain the block diagram of μc 8051.	**6**
9.	a)	Interface two 16 KB ROM chips and One 8 KB RAM chips with μc 8051. ROM map start at 0000H, RAM map start at 0000H.	**8**
	b)	Interface Stepper motor with μc 8051 through IC 8255 port A. Write a program to rotate the motor clockwise in full stepping mode continuously.	**8**

OR

10.	a)	Write an ALP for μc 8051 to create a square wave of 50% duty cycle on the P1.5 bit. Timer-0 is used to generate the time delay. Load count to get maximum time delay. Calculate the amount of time delay in the DELAY subroutine generated by the timer. Assume XTAL = 11.0592 MHz.	**8**
	b)	Write an ALP for μc 8051 to continuously get 8-bit data from P0 and sends it to P1 while simultaneously creating a square wave of $200\,\mu s$ period on pin P2.1. Use timer 0 for delay with timer interrupt to create the square wave. Assume that XTAL = 11.0592 MHz.	**8**

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