

SE205 - Microprocessor and Microcontrollers

P. Pages : 2

Time : Three Hours



GUG/S/23/13915

Max. Marks : 80

- 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) Explain the following instruction of UP 8085. 8
- | | |
|----------------|------------------|
| i) LHL D C500H | ii) LXI H, C530H |
| iii) CMC | iv) ADC M |

- b) Enumerate the Flag register format of UP 8086 and discuss the significance of each flag. 8

OR

2. a) Interface 16KB of EPROM 16KB of RAM to UP 8085. The chip available is 8KB EPROM and 8KB RAM. Assume starting address is 8000H for RAM and 1000H for EPROM. Draw the complete interfacing diagram. 8

- b) Explain various addressing modes of 8086 with example. 8

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

- b) Write an ALP for UP 8086 which uses programmed I/O to input 80 characters from the 8251A, whose data buffer register's address is 0050, and put them in the memory buffer beginning at LINE. 8

OR

4. a) Write 8086 assembly language procedure to send an ASCII character, stored in register AH, to a printer via PORT B of an 8255 PPI when PORTC bit PC0 is strobed low and after an active low acknowledge signal is detected on PORT C bit PC5 from the printer. Assume a base address of 60H. 8

- b) Interface ADC 0808/0809 with UP 8085 using IC 8255. The Port A of 8255 chip is used to take input from ADC. The PC7 pin of Port C is connected to the EOC Pin of the ADC. The PC2-0 lines are connected to three address pins of the ADC to select input channels. The PC3 pin is connected to the SOC and ALE pin of ADC 0808/0809. Write an ALP to generate digital signal from analog data input at channel 0. 8

5. a) Write short note on UP 80386. 8
- | | |
|---------------------------------|-----------------------|
| i) Segment descriptor registers | ii) Control Registers |
| iii) Debug and Test Registers | |

- b) Explain the following pins of UP 80286. 8
- | | |
|--------------------------|------------|
| i) $\overline{COD}/INTA$ | ii) CAP |
| iii) LOCK | iv) S1, S0 |

OR

6. a) What is pipelining? Explain 3-stage pipelining? What are the different hazards in pipelining. 8
- b) Draw and explain flag register of UP 80486. 8
7. a) Calculate the period for one machine cycle if the crystal frequency is 16MHz. An 8051 system driven by 11.0592 MHz clock, find the time taken for an instruction which takes 4 machine cycle. 4
- b) Write ALP for UC 8051 to perform the following- 6
- Keep monitoring the P1.2 bit until it becomes high;
 - When P1.2 becomes high, write value 45H to port 0;
 - Send a high-to-low (H-to L) pulse to P2.3.
- c) What do you mean by SJMP, AJMP and LJMP in UC 8051. 6

OR

8. a) Draw and discuss the formats and bit definition of the following SFRs of UC 8051. 8
- TCON
 - TMOD
- a) Draw and explain the block diagram of UC 8051. 8
9. a) Interface 8 KB ROM chips and 8KB RAM chips with 8051. ROM map start at 0000H, RAM map start at 0000H. 8
- b) Interface Hex-key pad with UC 8051 and write a program to send the ASCII code of pressed key to port P0. 8

OR

10. a) Write an ALP that assumes INT1 pin is connected to a switch that is normally high. Whenever it goes low, it should turn on an LED. The LED is connected to P1.3 and is normally off. LED stays ON as long as the switch is pressed low, else it stays OFF after a fraction of a second. 8
- b) Write an ALP for counter 1 in mode 2 to count the clock pulses that are fed into pin T1 and display the state of the TL1 count on P2, which is connected to 8LEDs. Assume XTAL=11.0592 MHz. 8
