

SE205 - Microprocessor and Microcontrollers

P. Pages : 2

GUG/W/24/13915

Time : Three Hours



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) What is addressing mode? Explain various addressing modes of μp 8085 with example. **8**
- b) Enumerate the Flag register format of μp 8086 and discuss the significance of each flag. **8**

OR

2. a) Draw the timing diagram of Memory read, Memory write, I/O read and I/O write in minimum mode of μp 8086. **8**
- b) Explain the EI, DI, RIM and SIM instruction used in interrupt in μp 8085. **8**
3. a) Describe in detail along with diagram Mode-3, Mode-4 and Mode-5 of IC 8254. **8**
- b) Draw and explain block diagram of Intel 8251 USART in detail. **8**

OR

4. a) Explain the CWR format of IC 8255 in I/O mode. Write a control word to configure port A as input port in mode 0 and port B in mode 1 as output port. **8**
- b) Interface 8-bit DAC 0800 with μp 8085 using IC 8255. Write an ALP to generate continuous ramp waveform. The DAC is calibrated for 0V to 10V range. The 8255 address starts from 80H. **8**
5. a) Draw and explain paging in μp 80386. **8**
- b) Explain the following instructions of μp 80286. **8**
 - i) LAR
 - ii) LSL
 - iii) VERR
 - iv) VERW

OR

6. a) What is pipelining? Explain 3-stage pipelining? What are the different hazards in pipelining. **8**
- b) Explain the structure of Pentium control registers. **8**

7. a) What is the function of stack pointer? What is the value of SP on reset? 2
- b) Explain different addressing modes of μc 8051 with example. 6
- c) Write an ALP for μc 8051 to convert a binary number stored in external RAM location 3000H to its equivalent BCD number. 8

OR

8. a) Write an ALP for μc 8051 to get the x value from port P1 and send x^2 to port P2, continuously. Assume a look up table for square root is available from location 300H. 8
- b) Draw and explain the block diagram of μc 8051. 8
9. a) Interface two 8 KB ROM chips and two 8 KB RAM chips with μc 8051. ROM map start at 0000H, RAM map start at 0000H. 8
- b) Draw and explain the interfacing of stepper motor with μc 8051. Also write a program for clockwise and anticlockwise rotation of stepper motor in single stepping mode. 8

OR

10. a) Write an ALP for μc 8051 in which pin 3.3 (INT1) is connected to a pulse generator. The falling edge of the pulse turn ON and OFF the LED connected at P1.3 at the same rate as the pulses are applied to the INT1 pin. 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 8 LEDs. Assume XTAL = 11.0592 MHz. 8
