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B. Tech 5th Semester Examination

Microprocessor, Micro Computer & Interfacing (O.S.)

EC-5001

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : The question paper consist of five sections A, B, C, D and E. Section E is mandatory. Attempt one question from sections A, B, C and D. Assume suitable data if necessary.

SECTION - A

1. What is the difference between partial decoding and absolute decoding? Interface 16KB of RAM and 08 KB of ROM with 8085 microprocessor by using absolute decoding. Draw the address mapping and interfacing diagram. Use only one decoder for decoding the unused lines for the interfacing of RAM and ROM. **(15)**

2. (a) Draw and explain the architecture of 8085 microprocessor.

   (b) Explain the classification of various types of digital computers in terms of their speed, data handling capacity, cost etc. **(15)**

SECTION - B

3. (a) Explain the addressing modes of 8085 microprocessor alongwith example. **(8)**

   (b) Write an assembly language program to find the number of 0's and number of 1's in a given 8-bit number. **(7)**

4. (a) Draw and explain the timing diagram of LDA address instruction. **(8)**

   (b) Write an assembly language program to find the factorial of 08-bit number. **(7)**

SECTION - C

5. (a) Explain the various types of interrupt logic control instructions alongwith their formats in detail. **(8)**

   (b) Interface DAC 0808 with microprocessor. Draw the interfacing diagram and write the subroutine to generate inverse sawtooth waveform. **(7)**

6. (a) Draw and explain the block diagram of 8155 in details.

   (b) Explain the input and output operating modes of 8279. **(15)**

SECTION - D

7. (a) Draw and explain OCW1, OCW2 and OCW3 of 8259 interrupt controller. **(8)**

   (b) Explain mode2, mode4 and mode5 of 8253 alongwith waveforms. **(7)**

8. (a) Draw and explain the architecture of pentium processor. **(8)**

   (b) Explain the basic types of transfer of 8237 DMA controller. **(7)**

SECTION - E

9. (i) What is the difference between microprocessor and micro controller.

   (ii) What is difference between memory mapped I/O and I/O mapped I/O?

(iii) What is bus? Explain why address bus is unidirectional and data bus is bi-directional?

(iv) Write a subroutine to generate a delay of 10 micro second.

(v) Explain the role of stack and subroutine in microprocessor.

(vi) Explain the difference between hardware interrupt and software interrupt.

(vii) Draw and explain the status word format of 8155.

(viii) Explain the significance of read back command used in 8254 timer.

(ix) Explain ICW2 and ICW3 format of 8259 interrupt controller.

(x) Explain the operation of Model of 8255 for input mode alongwith waveforms. **(10×4=40)**