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Reg. No..................................

Name..

B.TECH. DEGREE EXAMINATION, NOVEMBER 2009

Third Semester

Branch : Computer Science and Engineering

MICROPROCESSOR SYSTEMS (R)

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions briefly.
Each question carries 4 marks.

1. What is ALU ? Explain its functions.

2. List the various registers in 8085 and state its functions.

3. Discuss the advantages and demerits of immediate addressing with suitable examples.

4. What are the control signals available for memory and I/O operations in 8085 ?

5. Explain the use of stack and stack pointer.

6. Write an 8085 program to obtain a delay of approximately 2 ms ; take the clock frequency as 3 MHz.

7. List the interrupts according to the priority.

8. Explain the programming technique for enabling and disabling of interrupt.

9. What is USART ? What are its applications ?

10. Describe the operation of 'IN' and 'OUT' instructions.

$(10 \times 4 = 40 \text{ marks})$

Part B

Answer either (A) or (B) from each module.
Each full question carries 12 marks.

MODULE 1

11. (A) Describe the functioning of two different input units and two different output units used with 8085 microprocessor.

(12 marks)

Or

(B) (i) Show how the memory of 8085 is organized ?

(6 marks)

(ii) Explain the working of MAR and MDR with an example.

(6 marks)

MODULE 2

12. (A) (i) Draw the timing diagram describing the operations which occur when the instruction JNZ is executed. Explain the same.

(6 marks)

(ii) Explain how the stack and stack pointer are updated ? Give an example. (6 marks)

Or

(B) .Distinguish between Register indirect addressing and Immediate addressing with the help of appropriate examples. Explain their merits and demerits.

(12 marks)

MODULE 3

13. (A) Sketch the basic timing diagram for M_1 (fetch cycle) M_2 (read cycle), showing $IO/\bar{M}$., S_0, S_1, ALE, $\overline{RD}$ and AD0 to AD7, A8 to A15 signal waveforms with respect to the clock of the system. Explain them.

(12 marks)

Or

(B) Explain the various I/O and Machine control group instructions used in 8085, with suitable examples.

(12 marks)

MODULE 4

14. (A) Write a subroutine to compare numbers to find the largest and using it in a main program select the largest of a series of numbers.

(12 marks)

Or

(B) Explain the various functions of the pins of 8259 and show how they are utilised in a practical system with 8085 microprocessor.

(12 marks)

MODULE 5

5. (A) Suggest a suitable system to display a BCD number entered through a keyboard to the microprocessor system on a 7-segment LED display (5 segments) using 8085 microprocessor. Draw the block schematics indicating the various sections. Write the program. Make necessary assumptions.

(12 marks)

Or

(B) Draw the circuit block diagram for a typical 2K × 8 RAM chip. Indicate all the control/address/ data signals involved. How this can be connected to a 8085 through a chip select ? Show the decoding logic and the circuit details.

(12 marks)

[5 × 12 = 60 marks]