

B.TECH. DEGREE EXAMINATION, DECEMBER 2012**Third Semester**

Branch : Computer Science and Engineering

MICROPROCESSOR SYSTEMS (R)

(Supplementary / Mercy Chance – Old Scheme)

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions briefly.**Each question carries 4 marks.*

1. Explain the functions of the following pins of 8085 :
(a) ALE ; (b) TRAP ; (c) HLDA ; (d) INTR.
2. What is PSW? Explain its functions.
3. Explain the complete actions taking place when the following are executed :
(a) DAA ; (b) SUI 3H ; (c) LHL D ; (d) RLC.
4. Describe the implicit addressing with the help of an example.
5. Write a program to generate a delay of 1 ms. Take the clock frequency as 3 MHz.
6. What is stack and stack pointer? What are their uses?
7. Describe how interrupts are enabled, disabled and masked.
8. What are RST instructions? How these are used to call subroutines?
9. Define and distinguish between Memory mapped I/O and I/O mapped I/O.
10. Explain DMA. What are its advantages?

(10 × 4 = 40 marks)

Part B*Answer any one full question from each module.**Each full question carries 12 marks.***MODULE 1**

11. (a) Clearly describe the functioning of the timing and control unit.
(b) List all the registers in 8085, describing their functions.

*Or***Turn over**

12. (a) What are the flags present in 8085? Explain their functions with appropriate examples.
(b) With neat diagrams, describe how an instruction is executed?

MODULE 2

13. Discuss all the addressing modes of 8085, giving at least two examples for each type.

Or

14. (a) Explain all the branch instructions in 8085.
(b) Write single 8085 instructions to perform the following tasks :
- (i) Exchange HL with the top of the stack.
 - (ii) Complement accumulator.
 - (iii) Initialise stack pointer with the contents of HL register.
 - (iv) Clear CY and AC flags.

MODULE 3

15. (a) Discuss the status of "status signals" and "control signals" of CPU 8085 during the following machine cycles :
- (i) Opcode fetch.
 - (ii) I/O write.
- (b) Draw and explain the timing diagram for memory read machine cycle.

Or

16. 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.

MODULE 4

17. (a) With a neat diagram, explain the interrupt structure in 8085.
(b) How SIM and RIM instructions are used for maskable interrupts? Explain by giving an example.

Or

18. (a) What are multiple interrupts? How these can be resolved using a priority encoder? Explain using an example.
(b) Explain and illustrate the ICW formats of 8259.

MODULE 5

19. (a) How block transfer DMA differs from cycle stealing DMA? Explain using flow diagram.
(b) Draw the functional block diagram of 8257 and explain its each block.

Or

20. Draw a circuit diagram to interface 8085 with an EPROM chip. Indicate the address and data line connections clearly. How the address decoder is designed?

(5 × 12 = 60 marks)