

F 3440

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Third Semester

Computer Science and Engineering

MICROPROCESSOR SYSTEMS (R)

(Regular / Improvement / Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** questions.

Each question carries 4 marks.

1. What are the different types of buses and their specialities in 8085?
2. List and explain the different registers in 8085.
3. What is the use of stack pointer? Why it is always decremented when each data is pushed into the stack?
4. What are the merits and demerits of direct and indirect addressing? Illustrate with an example.
5. Describe the call-return procedure sequence.
6. Write single 8085 instructions to perform each of the following tasks :
 - (i) Exchange HL with top of the stack.
 - (ii) Load the contents of XX10 and XX11 into HL register.
 - (iii) Clear CY and AC flags.
 - (iv) Initialise SP with the contents of HL register.
7. Define and distinguish between hardware and software interrupts giving suitable examples.
8. How an 8259 can be added to 8085? Explain.
9. Describe and distinguish between synchronous and asynchronous data transfer.
10. Explain the function of handshake signals with a suitable example.

(10 × 4 = 40 marks)

Part B

Answer **either** Section (a) or (b) from each module.

Each full question carries 12 marks.

MODULE 1

11. (a) With a neat block diagram, explain the internal architecture of 8085. Describe how the program execution is carrying out when an interrupt service is being done.

Or

Turn over

- (b) Draw a neat block diagram of micro computer system using 8085 microprocessor. Explain clearly all the essential units used to interface a keyboard and seven-segment display and necessary memory.

(12 marks)

MODULE 2

12. (a) (i) Describe the operation of PUSH and POP operations and their applications.
(ii) What are the machine control instructions? Explain with suitable examples.

(6 + 6 = 12 marks)

Or

- (b) What is the significance of addressing modes? With the help of examples, describe register, indirect and immediate addressing mode instructions.

(12 marks)

MODULE 3

13. (a) With necessary timing diagrams, explain the memory read and write operations. Sketch and explain all the associated control signals.

Or

- (b) Write an assembly language program to search an element in an array of bytes.

(12 marks)

MODULE 4

14. (a) With neat block diagram, explain the architecture of 8259 programmable interrupt controller and its features.

Or

- (b) (i) Distinguish between the maskable and non-maskable interrupts in 8085.
(ii) What is meant by polling? Explain a scheme for recognising multiple interrupts using priority encoder?

(6 + 6 = 12 marks)

MODULE 5

15. (a) Describe how the address space is partitioned in the 8085 system. Show where the monitor program, RAM and ROM locations, giving their address ranges and how the respective chips are selected by the microprocessor.

Or

- (b) (i) Explain I/O mapped I/O and memory mapped I/O with appropriate examples and their merits and demerits.
(ii) Show how 8257 is initialised.

(8 + 4 = 12 marks)

[5 × 12 = 60 marks]