F 3452 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2008

Third Semester

Branch : Computer Science and Engineering

MICROPROCESSOR SYSTEMS (R)

(2002 admission onwards)

[Regular/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 4 *marks.*

1. Specify the contents of the accumulator and the status of the CY flag when the following instructions are executed.

   MVIA, BTH
   ORA A
   RLC

2. What are the functions of the following pins of 8085 ?

   (a) $\overline{\text{INTA}}$ (b) READY.

3. Explain clearly the functions of the following registers.

   (a) Flag register. (b) Stack pointer.

4. Illustrate the functioning of the following 8085 instructions :

   (a) SUB M. (b) MOV A, M.

5. Explain with schematic, how separate address, data signals can be generated from 8085 common address data lines ?
6. Describe the instruction cycle and machine cycle.
7. What are hardware interrupts and software interrupts ? How the address in generated for these ?
8. Explain how cascading of 8259 is carried out ?
9. Compare program driven data transfer with interrupt driven data transfer.
10. Show how a RAM chip can be interfaced with 8085 ?

(10 × 4 = 40 marks)

Part B

Answer **either** *A* **or** *B section of each question.*
Each question carries 12 *marks.*

11. (a) With neat diagrams, explain the register organisation and control features of 8085 processor ?

(12 marks)

Or

Turn over

(b) (i) Describe how the multiplexing of address and data buses done in 8085 ? Explain with examples.

(6 marks)

(ii) Describe the various steps in executing a typical arithmetic instruction in 8085.

(6 marks)

12. (a) What are the different addressing modes available in 8085 microprocessor ? With examples, explain how the effective address is computed in each case ?

(12 marks)

Or

(b) Describe the various stack instructions. Explain the changes taking place when PUSH, POP, RET and CALL instructions are used. Explain with the help of suitable examples.

(12 marks)

13. (a) Sketch and describe the timing diagrams for LXID, OF OF 8H and specify the time taken for execution of the instruction :

(12 marks)

Or

(b) Write a 8085 assembly language program to determine the smallest of a given byte array.

(12 marks)

14. (a) What is meant by polling ? Explain a scheme for recognising multiple interrupts using priority encoder.

(12 marks)

Or

(b) Explain with a flow diagram the sequence of events that take place when an interrupt occurs in a microprocessor based system. Explain the uses of RIM, SIM, EI and DI instructions of 8085 with reference to interrupts.

(12 marks)

15. (a) Explain with necessary diagrams, the DMA controller chip 8257. How it is used in a 8085 based system ?

(12 marks)

Or

(b) Describe address space partitioning. Draw the circuit diagram, clearly indicating the chip select lines, to interface two 8 K × 8 EPROM and one 4 K × 8 RAM memory chips to 8085.

(12 marks)

[5 × 12 = 60 marks]