Total No. of Questions—12] [Total No. of Printed Pages—4

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S.E. (Comp. Engg.) (II Sem.) EXAMINATION, 2010

MICROPROCESSORS AND INTERFACING TECH.

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer Q. No. **1** *or* **2**, Q. No. **3** *or* **4**, Q. No. **5** *or* **6**, Q. No. **7** *or* **8**, Q. No. **9** *or* **10**, Q. No. **11** *or* **12**.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Assume suitable data, if necessary.

SECTION I

1. (*a*) Draw and explain functional block diagram of the 80386 microprocessor. [8]

(*b*) Explain I/O mapped I/O and memory mapped I/O with the help of neat diagram. [8]

Or

2. (*a*) Explain the physical address formation in an 8086 system. [8]

(*b*) Explain different address decoding techniques in detail. [8]

P.T.O.

3. (*a*) Write a program in 8086 assembly language to convert Hex to BCD. Display proper string to prompt the user while accepting the input and displaying the results. [8]

(*b*) Explain the difference between near and far procedure of 8086 microprocessor. [4]

(*c*) Explain the following 8086 instructions :

(*i*) XLAT

(*ii*) AAS. [4]

Or

4. (*a*) Write an 8086 Assembly language program to separate even and odd numbers in the array. Write appropriate comments. [8]

(*b*) What is assembler directives ? Explain in brief the following assembler directives :

(*i*) ENDS

(*ii*) EXTERN

(*iii*) NEAR

(*iv*) DB. [8]

5. (*a*) Draw and explain block diagram of 8259 PIC and also explain how many maximum no. of slaves can be connected to one master ? [10]

(*b*) Explain operation of 8254 in mode 1 and mode 3 with the help of timing diagram. [8]

Or

6. (*a*) Draw and explain block diagram of 8254 timer in brief. Also draw control word format for 8254 timer. [10]

(*b*) What are type 0, 1, 2, 3 interrupts for 8086 processor ? [8]

SECTION II

7. (*a*) Draw a detailed block diagram of 8255 PPI. Also explain mode 2 of 8255 with the help of timing diagram. [8]

(*b*) Explain BSR and I/O mode word formats of the 8255 PPI. Write a BSR control word subroutine to set bits PC7 and PC3 and reset them after 10 msec. Assume that a delay subroutine is available. Address for control word register = 83H. [8]

Or

8. (*a*) Draw and explain the functional block diagram of 8251. [8]

(*b*) Explain different modes of operation for DMA. [8]

9. (*a*) What is A/D converter ? Which are different methods for A/D conversion ? Explain successive approximation ADC with the help of block diagram. [8]

(*b*) Explain in detail the sources of errors in DAC. [8]

Or

10. (*a*) Explain the working of any *one* temperature transducer. [8]

(*b*) Specify the advantage, disadvantage and application of an LVDT. [8]

11. (*a*) Where is the BIOS located ? Explain what routines are the part of BIOS ? [8]

(*b*) What is TSR ? Explain the structure of TSR in detail. [10]

Or

12. (*a*) Write an assembly language program for TSR to activate beep sound when any key is pressed. [10]

(*b*) Compare ·com file and ·exe file. Explain the procedure to generate ·com and ·exe files from ·Asm files. [8]