

C 6076

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Name.....

Reg. No.....

**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2010**

CS/IT 04 404—MICROPROCESSOR BASED DESIGN

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) What features are provided by the memory controller hub (North bridge) of the chipset in the mother board of personal computer system ?
- (b) List the advantages of segmented memory system. Also mention the different memory segments of 8086/8088 based system.
- (c) Explain the operation of "MOVSB" instruction.
- (d) Suppose that DS = 1000 h, SS = 2000 h, BP = 1000 h and DI = 0100 h. Determine the memory address accessed by each one of the following instructions.

(i) MOV AL, [BP + DI]

(ii) MOV CX, [DI].

(Assume real mode of operation).

- (e) The 8279 keyboard display controller IC is supplied with a clock signal of 3.1 MHz. After reset what will be its internal clock frequency ?
- (f) What are the purposes of the $\overline{\text{CAS}}$ and $\overline{\text{RAS}}$ inputs of a DRAM ?
- (g) How many 8259 A programmable interrupt controller IC's are to be used to expand and provide interrupts to 22 different devices ? (State the minimum number of IC's required). Also specify the uses of CAS0 – CAS2 pins of 8259 A.
- (h) Explain DMA mode of data transfer.

(8 × 5 = 40 marks)

- II. (a) Draw the programmer's model of pentium-4 microprocessor and explain the function of each register.

Or

- (b) Discuss in detail about the functions of the chipset provided in the mother board of a PC.

- III. (a) Discuss about the jump group instructions of microprocessor.

Or

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- (b) Write an assembly language program to accept 10 numbers from the key board (32 bit integers) and then sort these numbers using bubble sort to technique in ascending order and displays it on the display. Also explain the algorithm using suitable example.

IV. (a) Draw the ADC 0804 interface circuit to a microprocessor and explain its operation.

Or

(b) Explain the following :—

- (i) Initializing the 16550 UART.
- (ii) Programming 16550 for various baud notes.
- (iii) 16550 UART errors.

V. (a) Explain the DMA mode of data Transfer in detail.

Or

(b) Discuss about the features of PCI bus and its configuration details.

(4 × 15 = 60 marks)

(d) Suppose that DS = 1000 h, SS = 2000 h, BP = 1000 h and DI = 0100 h. Determine the memory address accessed by each one of the following instructions.

(i) MOV AL, [BP + DI]

(ii) MOV CX, [DI]

(Assume real mode of operation).

(e) The 8279 keyboard display controller IC is supplied with a clock signal of 3.1 MHz. After reset what will be its internal clock frequency?

(f) What are the purposes of the \overline{CAS} and \overline{RAS} inputs of a DRAM?

(g) How many 8259 A programmable interrupt controller IC's are to be used to expand and provide interrupts to 32 different devices? (State the minimum number of IC's required). Also specify the uses of \overline{CAS} - $\overline{CAS2}$ pins of 8259 A.

(h) Explain DMA mode of data transfer.

(8 × 5 = 40 marks)

II. (a) Draw the programmer's model of pentium-4 microprocessor and explain the function of each register.

Or

(b) Discuss in detail about the functions of the chipset provided in the mother board of a PC.

III. (a) Discuss about the jump group instructions of microprocessor.

Or