C 48104 (Pages 2) Name.....

Reg No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2008

CS/IT 2K 406/PTCS 2K 405—HARDWARE SYSTEMS DESIGN

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

I. (a) Briefly explain the pin-out of 8086 microprocessor.

(b) Explain the purpose of power good signal.

(c) Determine the memory locations addressed by the following real mode 80286 combinations :

(i) DS = 1000 H and DI = 2000 H.

(ii) DS = 2000 H and SI = 1002 H.

(iii) SS = 2300 H and BP = 3200 H.

(iv) DS = A000H and BX = 1000 H.

(d) Explain the purpose of GDTR.

(e) Briefly explain the functions of 8079 chip.

(f) Explain the operation of a real mode interrupt.

(g) Explain the basic DMA operation.

(h) Explain VESA bus architecture.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*

II. (a) Explain the MIN/MAX mode of operation of 8086 microprocessor. (15 marks)

Or

(b) (i) Explain different types of memory devices. (8 marks)

(ii) What is meant by address decoding ? Give an example. (7 marks)

III. (a) (i) Explain real mode memory addressing. (8 marks)

(ii) What is the purpose of a segment register in real mode addressing ? (7 marks)

Or

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(b) (i) Briefly explain the various program memory addressing modes. (8 marks)

(ii) Explain the difference between direct program memory addressing and indirect program memory addressing. (7 marks)

IV. (a) Explain the 8254 programmable interval timer. (15 marks)

Or

(b) Explain the different modes of operation of 8255 programmable peripheral interface. (15 marks)

V. (a) Briefly explain the following :—

(i) ISA bus.

(ii) VESA bus.

(iii) EISA bus.

(iv) PCI bus. (15 marks)

Or

(b) (i) Explain about the hardware interrupts of 8086 family of microprocessors. (8 marks)

(ii) Explain the 8259 A interrupt controller. (7 marks)

[4 × 15 = 60 marks]