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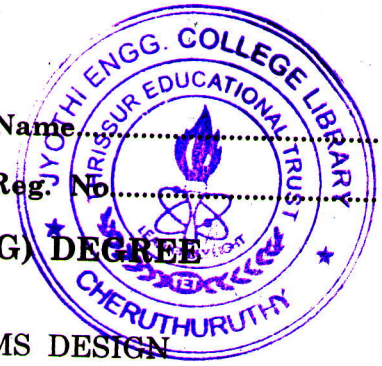
(Pages : 2)

Name

Reg. No

**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, JUNE 2009**

✓ CS/IT 2K 406/PT CS 2K 405—HARDWARE SYSTEMS DESIGN



Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

**Part A**

- I. (a) What is the role of a graphics adapter in a micro processor system ?
- (b) Explain serial and parallel interfaces.
- (c) Explain the fields of the FLAG register.
- (d) Explain real mode memory addressing.
- (e) Explain isolated I/O and memory mapped I/O.
- (f) Briefly explain how 16550 UART is used for serial communication.
- (g) Explain the basics of DMA data transfer.
- (h) What are the tasks of a bus arbitrator ?

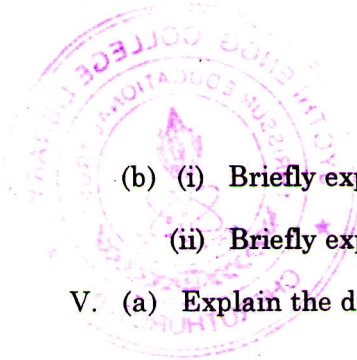
(8 × 5 = 40 marks)

**Part B**

- II. (a) Draw the functional block diagram of a PC and explain various components in it.  
*Or*  
(b) Explain the read and write timing of the 8086/8088 microprocessor.
- III. (a) Explain the addressing modes in 8086 microprocessor. Give example for each.  
*Or*  
(b) (i) What is the purpose of the segment register in protected mode memory addressing ?  
(ii) How segment and offset addressing schemes allows relocation ?
- IV. (a) (i) Explain the features of 8237 DMA controller.  
(ii) Explain different types of DMA data transfers.

*Or*

**Turn over**



(b) (i) Briefly explain the EISA local bus and architecture.

(ii) Briefly explain the architecture of PCI bus.

V. (a) Explain the different modes of operation of 8255 programmable peripheral interface.

*Or*

(b) Explain the 8279 programmable keyboard and display interface.

(4 × 15 = 60 marks)