B. Tech. VI Semester (Main/Back) Exam. May/June 2012

ELECTRICAL ENGINEERING # 6EE6.1

ADVANCED MICROPROCESSORS

Time : 3 Hours   **Min. Passing Marks : 24**   **Maximum Marks : 80**

Instruction to Candidates :

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

Unit-'I'

1. (a) Explain pin configuration of 8086. [8]

   (b) Construct minimum mode and maximum mode operation in 8086/8088 with thehelp of read/write timing diagram. [8]

OR

   (a) With the help of a neat diagram explain the memory segmentation and its advantages in 8086. [8]

   (b) Explain the architecture of 8086 with help of diagram. List out various flag register bits and their description. [8]

Unit-'II'

2. (a) Explain the segmented memory scheme in 8086 and its advantages, why the memory is physically organized as ODD and EVEN banks. [8]

   (b) What do you understand by addressing mode? Explain different addressing modes with suitable examples for 8086 microprocessor? [8]

OR

   (a) Obtain effective address for different addressing modes with the contents of registers as given below: Offset = 1000H, [AX], = 5000 H, [BX] = 2000H, [SI] = 3000 H, [DS] = 7000 H, [BP] = 2000H, [DI] = 4000 H, [BP] = 6000 H. [8]

   (b) Explain control transfer and Branching instruction of 8086. [8]

Unit-'III'

3. (a) What are the different modes of operation of 8253 programmable timer? Explain with the help of waveform. [8]

   (b) Draw the architecture of 8255 PPI. Explain the various modes of operation in 8255 PPI. [8]

OR

   (a) Explain 8155 chip with the help of block diagram? [8]

   (b) Specify the conditions to start the time 8253/8254 and set-up 8253 as a square wave generator with a 1ms period, if the input frequency to 8253 is 1MHz (mode-3). [8]

Unit-'IV'

4. (a) Interface an 8bit ADC with 8086 using 8255 PPI. [8]

   (b) Explain analog to Digital Converters. [8]

OR

   (a) DMA based I/O scheme is better than interrupt based I/O scheme. Justify this statement. Also draw the block diagram of DMA controller 8257 or 8037R. Explain its different blocks and different modes. [16]

Unit-'V'

5. (a) Discuss the features of 80486. Compare it with 80386. [8]

   (b) Draw the architecture of 80386. [8]

OR

Explain the following regarding to 80386.

(a) General purpose register

(b) Pointer and index register

(c) Segment register

(d) System address registers [16]