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**EX-502**

**B. E. (Fifth Semester) EXAMINATION, June, 2008**

**(Electrical & Electronics Engg.)**

**FUNDAMENTALS OF MICROPROCESSOR AND  
MICROCONTROLLERS**

**(EX-502)**

*Time : Three Hours*

*Maximum Marks : 100*

*Minimum Pass Marks : 35*

**Note :** Attempt any five questions. All questions carry equal marks.

1. (a) Explain the architecture of 16-bit microprocessor 8086 with the help of block diagram indicating each component.  
(b) How 8086 fetches an instruction from memory in minimum mode? Draw its timing diagram also.
2. (a) Explain clearly with examples difference between hardware and software interrupts, maskable and non-maskable interrupts. Also discuss multiple interrupts and interrupt priorities.  
(b) Discuss and explain various data transfer schemes.
3. (a) What are the various addressing modes of 8086? Explain with examples.

- (b) What are the various instructions available for subroutine call and returns in 8086? How they are used in programming? Explain with examples.
4. (a) Write an assembly language program to arrange a given series of hexadecimal bytes in ascending order.  
(b) Draw an interfacing circuitry for 8-bit ADC to microprocessor 8086. Assume the availability of PPI 8255. Indicate all the necessary signals required.
5. (a) Explain various operating modes of 8254 timer.  
(b) Discuss the operation of DMA controller 8257. Also explain its various modes of operation.
6. (a) Discuss the functions of the 8259 A interrupt controller and its operation in the fully nested mode.  
(b) Give review and evolution of advanced microprocessors.
7. (a) Draw pin diagram of 8051 and explain the function of each pin.  
(b) Explain Interrupt structure and interrupt priorities of 8051.
8. Write short notes on any two of the following :
  - (a) Pin diagram and function of pins of 8086
  - (b) 8088 processor architecture
  - (c) Assemble directives and operations
  - (d) USART
  - (v) Bus standards RS-232-C

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