

**Code No: A4904, A5403**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD  
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012  
MICROPROCESSORS AND MICROCONTROLLERS  
(COMMON TO ELECTRICAL POWER ENGINEERING, POWER ELECTRONICS AND  
ELECTRIC DRIVES)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) Explain the architecture of 8086 with the help of neat block diagram.  
b) Explain different instruction formats of 8086 under different addressing modes.
- 2.a) Explain the minimum mode working of 8086 with a neat schematic diagram.  
b) Draw the timing diagram for memory write cycle in the maximum mode of 8086 and explain the same.
- 3.a) Explain different types of interrupts available in 8086. What is interrupt vector table? What is its significance in 8086?  
b) Explain how stack is used in handling interrupts of 8086.
- 4.a) What is the significance of memory paging in 80386? Explain the process of physical address calculation.  
b) Explain the architecture of Pentium Pro processor with the help of a neat block diagram and how is it different from Pentium processor.
5. Explain various modes of operation of 8255? What is the significance of various handshaking signals in mode 1 and mode 2 of 8255?
- 6.a) Explain the architecture of 8259 with the help of a neat block diagram. How can 8259 handle interrupt requests more than 8.  
b) Explain the modes of operation of 8253.
- 7.a) Explain the memory organization of 8051 microcontroller, also explain the flag register organization and functions of 8051.  
b) What are the various addressing modes available in 8051? Explain with examples.
- 8.a) Explain the different arithmetic and logical instructions available for 8051 in different addressing modes.  
b) Write an ALP for 8051 to arrange a list of 8 bit numbers in ascending order.