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Roll No.					Total No. of Pages : 02

Total No. of Questions: 08

M.Tech.(ECE) EL-I (2016 Batch) (Sem.-2) ADVANCED MICROPROCESSOR & EMBEDDED SYSTEMS

Subject Code: MTEC-204A M.Code: 74281

Time: 3 Hrs. Max. Marks: 100

INSTRUCTION TO CANDIDATES:

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWENTY marks.
- 1. a) With a block diagram, describe the maximum mode operation of 8086 microprocessor.
 - b) Explain the internal architecture of Pentium processor with a block diagram.
- 2. a) Describe with block diagram interfacing of DAC with 8086 microprocessor.
 - b) With functional block diagram, explain the operation and programming of 8251 USART in detail.
- 3. a) Explain the memory organization of 8086 microprocessor. Draw the timing diagram of a typical memory read machine cycle.
 - b) Describe the importance of stack and stack pointer in 8086 microprocessor. Suppose [AX] = 85H and [BX] = 64H, [SP] = 2000H. What will be the value of AX, BX and SP after the following set of instructions are executed?
 - i) PUSH AX
 - ii) POP BX
- 4. a) Sketch and explain the interface of 8K x 16 RAMs using a decoder in minimum mode. What is the maximum access time of RAMs such that it does not require wait states when 8086 operates at 8 MHz?
 - b) Draw the pin diagram of 8086 microprocessor and explain its each pin.

1 M-74281 (S9)-2096



- 5. a) Write an ALP using 8086 instructions to count the numbers of zeros in a given 8-bit number and store the result in memory location 'Res'.
 - b) Explain the hardware interrupt inputs NMI, INTR and INTA (active low signal) using timing diagram.
- 6. a) Write a program to separate out positive and negative numbers from a given series of 16-bit hexadecimal numbers.
 - b) What are various operators used in 8086 microprocessor?
- 7. a) With suitable diagram, explain how the Priority Interrupt controller 8259 can be interfaced with 8086 in cascade mode.
 - b) Explain register organization of 8086 and explain typical application of each register.
- 8. Draw the pin schematic of DMA controller and describe the series of actions that a DMA controller will perform after it receives a request from a peripheral device to transfer data from the peripheral device to memory.

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NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 M-74281 (S9)-2096