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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.

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.

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.