Code No: I5601/R16

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M. Tech. I Semester Regular Examinations, January-2017

MICROPROCESSORS & MICRO CONTROLLERS

Common to Power Systems(56),PSC &A(53),PSE(30),PS & C(31),ADV PS(50) and EPE(60)

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Time: 3 Hours   **Max. Marks: 60**

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Answer any FIVE Questions
All Questions Carry Equal Marks

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1. a What is a Register? What is their use? What is the size of 8086 registers? Discuss the use of AX, BX, CX and DX registers of 8086. [6]

   b Explain the functions of $RQ/\overline{GT}$, $HOLD$, $MN/\overline{MX}$, $\overline{BHE}$ registers of 8086 microprocessors. [6]

2. a Write algorithm and assembly language in 8086 to find the factorial of a given number. [6]

   b List and explain various data transfer instructions of 8086 microprocessor. [6]

3. a With the help of timing diagram, explain the general bus operation of 8086 microprocessor. [6]

   b What is the main advantage of DMA? Discuss the operation of DMA data transfer. [6]

4. a Compare between memory mapped I/O and I/O mapped I/O schemes for addressing mapping of various input/output devices. [4]

   b What is the need for stack in 8086 based system? Explain the structure and operation of 8086 stack. [8]

5. a The ADC 0808 is interfaced with 8086 using 8255 ports. Port A of 8255 is used for transferring digital data output of ADC to the CPU and port C for control signals. An analog input is present at I/P2 of the ADC and a clock input of suitable frequency is available for ADC. Draw the schematic diagram and write required assembly language program. [6]

   b Differentiate between vectored and non-vectored interrupts. Draw and explain the interrupt vector table of 8086 microprocessor. [6]

6.   With a neat block diagram, explain the operation of 8255. Also explain various modes of operation of 8255. Give example applications of each mode of 8255. [12]

7. a Compare between serial communication and parallel communication. [3]

   b Draw the internal architecture and explain the operation of Programmable Communication Interface 8251 USART. [9]

8. a Explain the evolution of microcontrollers. [3]

   b Compare between microprocessors and microcontrollers. [3]

   c List and discuss various addressing modes supported by 8051 microcontrollers. [6]

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