Code No: 45098 **R07** **Set No - 3**

III B.Tech I Semester Regular Examinations,Nov/Dec 2009
MICROPROCESSORS AND INTERFACING
Common to Information Technology, Instrumentation And Control Engineering, Electronics And Computer Engineering, Computer Science And Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is the purpose of ALE, BHE, DT/$\overline{R}$ and $\overline{DEN}$ pins of 8086? Show their timing in the system bus cycle of 8086?
   (b) Show the complete design to generate system address, data and control buses using the above pins, latches and transceivers. [8+8]

2. (a) Discuss the register organization of 80286 processor?
   (b) Explain real addressing mode of 80386? [8+8]

3. It is necessary to define a block of data in 8086 assemble language program. The length of the block is 80,000 Bytes. Give the initialization of data segment for the above data? It is necessary to exchange second element and 70000th element in the above. Give the sequence of instructions to perform the above operation? [16]

4. It is necessary to serve 15 interrupt requests using 8259's. The address map for the 8259's is given from 0100H to 0103H. Show the complete interface with 8086 system bus? These 15 interrupts are to be requested from interrupt type 060H on words, with level trigged mode and auto end of interrupt. Give the initialization sequence for all 8259's. [16]

5. (a) A DAC is interfaced to 8255 with an address map of 0800H to 0803H. Give the hardware design? It is necessary to design a counter type ADC with the same 8255 and DAC using a comparator. Give the necessary hardware? Provide the necessary instruction sequence to store a sample in location 'sampleone'?
   (b) Using the above hardware write the instruction sequence for successive approximation ADC? [8+8]

6. It is necessary to check weather the word stored in location A000H:A000H is positive number or not? Show all possible ways of testing the above condition and store 00H if the condition is satisfied in location E000:2002. Otherwise store 0FFH. [16]

7. (a) What are the MODEM control lines? Explain the function of each line? Discuss how MODEM is controlled using these lines with necessary sequence of instructions?
   (b) Interface 8251 with 8086 at address 0F0H. Initialize it in asynchronous mode, with 8 bit character size, baud rate factor 16, one start bit, two stop bits, even parity enable? [8+8]

8. Interface two 8255s to 8051 with starting address of 0FFF0H? Show the hardware design? Write the instruction sequence to initialize all ports of 8255s as input ports in mode 0. [16]

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