Code No: 45098 **R07** **Set No - 4**

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

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) How does 8051 differentiate between the external and internal program memory?
   (b) Explain with waveforms different modes of counter/timer in 8051? [8+8]
2. (a) Discuss the sequence of operations performed in the interrupt acknowledge cycle?
   (b) What is the purpose of IF flag in handling the interrupts?
   (c) Which interrupt type is associated with TF flag? What is the vector address? Explain the use of this interrupt? [16]
3. (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) Discuss the Command instruction and Status register format of 8251? [8+8]
4. (a) What is the difference between HALT state and HOLD state? Discuss the status of different control pins of 8086 in both the states?
   (b) What are the control signals useful for inter processor communication using 8086? What instruction set support is provided in 8086? [8+8]
5. (a) Explain the protected virtual address mode of 80386 and show how 24 bit physical address is generated?
   (b) Discuss the specific features of code and data cache of Pentium processor and also discuss the merits and demerits? [8+8]
6. (a) Develop an 8086 assembly language program that will determine if a given sub-string is present or not in a main string of characters. Place the result as P if present else place 'N' in memory location 'result'.
   (b) What is a procedure? How is a procedure identified as near or far? [8+8]
7. 8086 processor do not provide memory indirect addressing mode. Show all possible ways to access a word from memory where the offset is given in location 3000H:4000H. Use other addressing modes of 8086 and give instruction sequence for every method? [16]

8. Interface an 8-bit DAC to 8255 with an address map of 0D00H to 0D03H. The DAC provides output in the range of +12V to -12V. Write the instruction sequence for the following?

   (a) For generating a square wave with a peak to peak voltage of 8V and the frequency will be selected from memory location 'FREQ'.

   (b) For generating a triangular wave with a maximum voltage of +6V and a minimum of 4V. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆