JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech III Year II Semester Examinations, December-2014/January-2015
MICROPROCESSORS AND MICROCONTROLLERS
(Common to EEE, ECE, EIE, ETM)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

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1.a) Explain the function of the following signals of 8086.
   i) *ALE*   ii) $\overline{TEST}$ iii) *HOLD*   iv) *NMI*
   v) $\overline{BHE}$ vi) $DT/\overline{R}$ vii) *READY*   viii) $\overline{DEN}$
  b) Explain the physical address formation in 8086 microprocessor.

2.a) What is an assembler directive? Explain the following assembler directives:
   i) ASSUME   ii) EQU   iii) LABEL   iv) OFFSET
  b) Write an 8086 assembly language program to find out the number of positive numbers and negative numbers from a given series of signed numbers.

3.a) Draw and explain the stepper motor interface to 8086 and write small program to rotate stepper motor in clock wise and anticlockwise directions.
  b) Explain the A/D converter interface to 8086 microprocessor.

4.a) Explain various DOS and BIOS interrupts. Give necessary examples.
  b) Explain how static RAMs are interfaced to 8086. Give necessary interface diagram assuming appropriate signals and memory size.

5.a) Explain synchronous and asynchronous data transfer with examples.
  b) Give an overview of RS-232C serial data standard.

6.a) Explain the basic differences between a microprocessor and a microcontroller.
  b) Draw the architectural diagram of 8051 microcontroller and explain in detail about each block.

7.a) Describe the various timer modes of operation in 8051.
  b) Explain the standard 8-bit UART mode of serial data communication in 8051. What is the value loaded in the timer 1 registers to obtain a baud rate of 9600 bps.

8. Explain about the register file structure, ALU, memory access and instruction execution for a 8-bit AVR family microcontroller.

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