| BIEL-008 |

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

June, 2012

BIEL-008 : MICROCONTROLLERS

Time : 3 Hours   *Maximum Marks : 70*

Note : (i) *Attempt any seven questions.*

(ii) *All questions carry equal marks.*

1. (a) What are the RISC and CISC processors ? Also discuss the advantages of microcontroller over microprocessor.   **5x2=10**

    (b) What are the functions of the following 8051 pins ?

    (i) ALE   (ii) $\overline{EA}$

    (iii) $\overline{PSEN}$ (iv) RST

    (v) TXD

2. Explain the different addressing modes of 8051   **10**
    microcontroller. Explain the following instruction
    with operations after executions :

    ANL A, adder

    MOV C, b

    MOV DPTR, # 0170H

    MOV A, @ Ro

    CPL A

3. (a) Explain the JUMP and CALL program range.   5x2=10

   (b) Write a program to :
       (i) clear ACC, then
       (ii) add 3 to the accumulator ten times.

4. What are the timing subroutines of 8051 ? Also   10
   explain the pure software time delay and pure
   hardware delay in details.

5. What are the TMOD and TCON ? Also explain   10
   the all four modes of the Timer mode control
   register (TMOD).

6. Explain the RS - 232C serial I/O standard. What   10
   are the different signals required for data
   transmission using hand shaking ? Mention the
   function of each signal.

7. Explain the interrupt Vector Table for the 8051.   10
   Also explain the interrupt priority in the 8051.

8. (a) Describe the 8051 connection to the   5x2=10
       stepper motor.

   (b) Write a program to rotate the stepper
       motor continuously and how we control its
       speed ?

9. Write a program that continuously gets 8-bit data **10** from P_0 and send it to P_1 while simultaneously creating a square wave of 200 μs period on pin $P_{2.1}$. Use timer 0 to create the square wave. Assume that, XTAL= 11.0592 MHz.

10. Write short notes on *any two* : **5x2=10**
   (a) Parallel and Serial ADC
   (b) Instruction set of 8051
   (c) Interfacing 8051 to LCD