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B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2012

BIEL-008 : MICRO CONTROLLERS

Time : 3 Hours   *Maximum Marks : 70*

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

(ii)   *All questions carry equal marks.*

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1.   (a)   Explain the Harvard and Von Neumann
           architectures.   5x2=10

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

           (i) $XTAL_2$ (ii)   RXD

           (iii) T_0 (iv) $\overline{INT_1}$

2.   Write a program to copy the value 55 H into RAM   **10**
     memory locations 40 H to 45 H using :

     (a)   Direct addressing mode.

     (b)   Register indirect addressing mode without
           a loop.

3.   (a)   Explain :   5x2=10

           (i)   JZ   (ii)   JNC

           (iii)   LCALL   (iv)   ACALL

(b) Write a program to :

    (i)   load the accumulator with the value of 55 H

    (ii)   complement the ACC 700 times.

4.   (a)   Explain the software - Polled Timer in 8051. Also write the formula to calculate total timing error for the program.   **5x2=10**

    (b)   Explain the lookup tables for the 8051.

5.   (a)   Explain the basic registers of the timer in 8051.   **5x2=10**

    (b)   Find the timer's clock frequency and its period for various 8051-based systems, with the following crystal frequencies :

    (i)   12 MH_2

    (ii)   16 MH_2

    (iii) 11.0592 MH_2

6.   (a)   Compare serial versus parallel communication. Also list the advantages of serial communication over parallel.   **5x2=10**

    (b)   Write a program for 8051 to transfer letter "A" serially at 4800 band, continuously.

7.   (a)   Compare Interrupts versus polling.   **5x2=10**

    (b)   Give name of interrupts in the 8051 and explain each one of them.

8. (a) Draw the connection diagram of 8051 with
DAC 808. **5x2=10**

(b) Explain the pin description of LCD.

9. (a) What are the bus standards for
RS – 232C ? **5x2=10**

(b) Explain how timer 'O' of 8051 works with
a suitable example.

10. Write short notes on *any two* : **5x2=10**

(a) Subroutine call and returns

(b) Bit set/reset instructions of 8051

(c) Microprocessors and microcontrollers.

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