SU-8172   Seat No._____

M. C. A. (Sem. IV) Examination

May / June – 2006

Microprocessor & Microcontroller

(New Course)

Time : **3** Hours]   [Total Marks : **75**

1   Attempt any **three** :   **15**

  (a)   Specify different criteria needed for choosing a micro controller.

  (b)   Specify the features of 8051 microcontroller.

  (c)   Specify the use of different files created during the assembling and running of 8051 program.

  (d)   Explain 8051 data types and directives.

2   Attempt any **three** :   **15**

  (a)   Write a program to complement the content of accumulator 500 times.

  (b)   Explain the use of CALL instruction and stack with example.

  (c)   Write a program to monitor the P 2.7 bit. where it is low, send 55H and AAH to PO continuously.

  (d)   Explain direct addressing mode in reference to stack with example.

3   Attempt any **three** :   **15**

  (a)   What is the significance of PSW register ?

  (b)   Desribe the categorization of RAM space in 8051.

  (c)   Explain the concept of signed numbers in computers.

  (d)   Explain concepts of serial communication.

SU-8172]   **1**   **[Contd...**

4 Do as directed : (any **three**)   **15**

  (a) Show the status of CY, AC, P flags after the addition of 8BH and 73H.

  (b) Find the time delay for the delay subroutine shown below, if the system frequency is 11.0592 MHz.

    DELAY : MOV   R5, # 100

    BACK : MOV   R2, # 200

    AGAIN : MOV   R3, # 250

    HERE : NOP

              NOP

              DJNZ   R3, HERE

              DJNZ   R2, AGAIN

              DJNZ   R5, BACK

              RET

    (Machine cycles : (1) $MOV \rightarrow 2$ (2) $NOP \rightarrow 1$ (3) $DJNZ \rightarrow 2$ (4) $RET \rightarrow 1$)

  (c) Find the value of DV flag, for following code :

    MOV A, # − 128

    MOV R4, # − 2

    ADD A, R4

  (d) Write a program to create a square wave of 50% duty cycle on P1.0.

5 Attempt following programs :   **15**

  (a) To see whether the D_0 and D_1 bits of A are high. If so divide it by 4.

  (b) To find the position of first high bit in an 8-bit data item. Data is scanned from D_0 to D_7.

  (c) To add 897F9AH to 34BC48H and save the result in RAM memory location starting at 40H.

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