DIPLOMA VIEP ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI) / ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRONICS AND COMMUNICATION ENGINEERING (ACECVI)

Term-End Examination
December, 2013

BIEL-031 : MICROCONTROLLER

Time : 2 hours   *Maximum Marks : 70*

Note :   *Answer **any five** questions. Each question carry **equal** marks.   Question no. **1** is **compulsory**.*

1.   Attempt all questions. Each carries two marks. Choose the correct answer from the given options.

7x2=14

   (a)   Which of the following instructions do not affect any of the PSW flags ?

   (i)   Data Transfer

   (ii)   Arithmetic and Logic instructions.

   (iii) Boolean manipulation instructions.

   (iv)   Program branching instructions.

   (b)   In 8052, the RAM capacity is

   (i)   128 bytes

   (ii)   256 bytes

   (iii) 512 bytes

   (iv)   None

   (c)   Address bus is a bidirectional bus- (TRUE/FALSE)

   (d)   The 8051 has on chip ADC. (TRUE/FALSE)

   (e)   Define syntax errors with examples.

(f) How many address lines are needed to access 32k byte memory ?
  (i) 10
  (ii) 12
  (iii) 15
  (iv) 5

(g) 8051 microcontroller is :
  (i) 8 bit microcontroller.
  (ii) 16 bit microcontroller.
  (iii) 32 bit microcontroller.
  (iv) None.

2. (a) Write instructions to use the registers of bank 3, and load the same value 05H in the registers R0-R3.   **6**

  (b) Explain the architecture of 8051 microcontroller with neat diagram.   **8**

3. (a) Explain addressing modes of 8051 with example.   **7**

  (b) Compare the features of 8051, 8751 and 8031, stating the need and criteria to select among these family members.   **7**

4. (a) What are the various ways to define the data types in 8051 assembly language ?   **7**

  (b) Write a program to find 2's complement of a number.   **7**

5. (a) What are the major registers of the 8051 and show their use with the simple instruction MOV and ADD ?   **7**

  (b) What are the major differences b/w microprocessor and microcontroller ? Discuss in brief the various applications of microcontroller.   **7**

6. (a) Draw and discuss the interfacing of D to A   7
         converter with 8085.

    (b) Discuss about the software used to execute   7
         the programs of 8051.

7. (a) Explain the concepts of memory banks.   7
         How and in what sense are the SFR
         addresses different than the upper 128 bytes
         of on chip RAM of 8052.

    (b) Discuss the functions of 8051 Boolean   7
         processor.

8. Attempt **any** of the *four* :   3.5x4=14

    (a) Harvard CPU architecture.
    (b) Practical applications using 8085
    (c) Stacks in 8051
    (d) Synchronous and asynchronous serial
         communication.
    (e) Need of peripheral devices.
    (f) IC 8155 operating modes.

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