B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)
Term-End Examination
December, 2015

BIEL-008 : MICROCONTROLLERS

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) Describe the evolution of 8051 microcontroller.

    (b) Explain the microcontroller with the help of a neat block diagram.   *2×5=10*

2. (a) Compare and contrast the RISC processor with the CISC processor.

    (b) Compare and contrast a microprocessor system with microcontroller system.   *2×5=10*

3. (a) Explain how a memory can be accessed by using various addressing modes.

    (b) What are the advantages of register indirect addressing mode ?   *2×5=10*

4. Assume that 5 BCD data items are stored in RAM locations starting at 40H, as shown below. Write a program to find the sum of all the numbers. The result must be in BCD. *10*

$$40 = (71)$$
$$41 = (11)$$
$$42 = (65)$$
$$43 = (59)$$
$$44 = (37)$$

5. (a) Explain the conditions that determine each conditional jump instructions.

(b) What is the function of each of the following commands ?

(i) JZ

(ii) JNC

(iii) LJMP   *2×5=10*

6. (a) Discuss the reason for writing a program in C for 8051 microcontroller.

(b) What are the various datatypes in C for 8051 ?   *2×5=10*

7. (a) Write a program to transfer a letter 'Y' serially at 9600 baud continuously, and also send a letter 'N' through port 0, which is connected to the display device.

   (b) Discuss the importance of TI flag. *2×5=10*

8. (a) Describe the various types of interrupts used in 8051 microcontroller.

   (b) Discuss the advantages of interrupt based data transfer. *2×5=10*

9. (a) Explain how data can be transferred to the LCD from a port using only 4 port lines.

   (b) What are the various control pins of LCD ? Also explain their functions. *2×5=10*

10. Write short notes on any *two* of the following : *2×5=10*

    (a) Harvard and Von Neumann CPU

    (b) Data Serialization

    (c) Stepper Motor Interfacing

—————