No. of Printed Pages : 3

BIEL-008

00211

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

June, 2013

BIEL-008 : MICRO CONTROLLERS

Time : 3 Hours *Maximum Marks : 70*

Note : *Question No.* ***10*** *is* ***compulsory.*** *Answer* ***any six*** *other questions. Assume data wherever it is not provided.*

1. (a) Describe the Harvard and Von - Neumann CPU architectures. 5

   (b) List the Interrupts in 8051. How can we enable or disable a particular Interrupt in 8051 ? 5

2. (a) Explain the 8051 addressing modes with examples. 5

   (b) What addresses are assigned to register banks in 8051 RAM ? Write a program that will invert every bit in register R6 of bank 1. 5

3. (a) Describe the function of the following instructions : 4

   (i) LJMP code addr

   (ii) XRL A data addr

   (b) Explain the features of 8051 microcontroller with suitable block diagrams. 6

4. (a) Write a program to add the unsigned numbers found in internal RAM locations 25h, 26h and 27h together and put the result in RAM locations 31h (MSB) and 30h (LSB). 5

(b) How is ADC interfaced with 8051/31 microcontroller ? Explain with an interfacing connection diagram. 5

5. (a) What is a subroutine ? What happens when a subroutine is called in the main program ? 4

(b) Write a program to turn on a low current LED connected to port O, bit O, after 10 cycles of an external pulse connected to port 3, bit 5. 6

6. (a) List three factors that can affect the delay size. 3

(b) Write an 8051 C program to read the P1.0 and P1.1 bits and issue an ASCII character to P0 according to the following table. 7

P1.1	P1.0	
0	0	Send '0' to P0
0	1	Send '1' to P0
1	0	Send '2' to P0
1	1	Send '3' to P0

7. (a) Explain why we program the 8051 in C language. 5

(b) How are timers 0 and 1 started and stopped by instructions ? Can we use both the timers in the same program and why ? 5

8. (a) What is PSW in 8051 ? Discuss the function of AC and P flags. 5

(b) Write a program to add two hex numbers and store the result at memory location 2060H. 5

9. (a) Write a program in which 10 bytes of data stored in RAM locations starting from 45H are transferred serially. At the end of data transfer, the value of R0 (i.e., 0) is displayed on P1. 6

(b) Explain the function of each bit in TCON register. 4

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

(a) Interfacing 8051 to LCD.

(b) Interfacing 8051 to stepper motor.

(c) Serial communication in 8051.