Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics & Computer Engg.) (2011 Onwards) (Sem.–5)

# MICROCONTROLLER & EMBEDDED SYSTEM

Subject Code : BTEL-502

Paper ID : [A2116]

Time : 3 Hrs. Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

**1. Answer briefly :**

a) Differentiate between microcontroller and microprocessor .

b) List the interrupt sources of 89C51 with their vector address.

c) What is an embedded system?

d) What is the use of directives? List them.

e) Give special function registers of 8051.

f) 8051 microcontroller with XTAL frequency = 11.0592 MHZ, find the TH1 value needed to have the following baud rates (i) 9600 (ii) 2400 (iii) 1200.

g) Draw the format of TCON register of 8051.

h) Indicate the steps to detect key press.

i) What do you mean by software partitioning?

j) What is flash programming?

## SECTION-B

2. Write an 8051 C program to transfer the message "WON" serially at 9600 baud 8-bit data. 2 start bit, 1 stop bit. Do this continuously.

3. Draw and explain the architecture of ARM microcontroller.

4. Write an assembly language program for 8051 microcontroller to arrange block of ten numbers in ascending order.

5. Write an assembly language program to toggle all bits of P1 continuously every 200ms. Use timer 0 mode 1 to create the delay.

6. Draw and explain interrupt enable register.

## SECTION-C

7. Describe how to program and interface LCD with microcontroller. Also give LCD pin descriptions. (10)

8. Explain the various parameters of an embedded system and its significance. Also, explain the embedded system design life cycles. (10)

9. a) What is the significance of addressing modes? Explain each addressing mode of 8051 with suitable examples. (7)

   b) List the alternate functions of Port 3 in 8051. (3)