8/11/13

B.E /B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, Nov/Dec 2013
INFORMATION TECHNOLOGY BRANCH
IV SEMESTER (R2004 / 2008)
IT 482 / IT9252 – EMBEDDED SYSTEMS

Time: 3 hrs **Max. Marks: 100**

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. Explain briefly challenges in Embedded systems .
2. Differentiate ADD and ADDC in 8051 assembly coding with example
3. Explain interrupt and give interrupt vector table for 8051
4. Write register structure of TMOD and IE registers in 8051
5. Discuss briefly about real time operating system scheduling
6. Explain briefly the parameters which will affect the system performance in scheduling policies
7. Write an embedded C program to read data from port1 and send values to port 2
8. Write a 8051 C program to send 00H and FFH to the LEDs connected at port P1 with small interval
9. Explain briefly in-circuit emulator
10. list out real world applications with embedded system design

Part – B (5 x 16 = 80 Marks)

11 (i) Draw architecture diagram of 8051 micro controller and explain the working principle of this processor (10)

(ii) Write an Assembly language program to generate a clock with an ON pulse of 100 ms and OFF pulse of 75 ms for a microcontroller working on an oscillator frequency of 22Mhz (6)

12.a. Explain the serial port communication in 8051 with an example assembly code

(OR)

b. Connect a 16K x 8 data and 8K x 16 program memory to 8051 using 8K x 8 memory chips Draw the connection diagram . Write an assembly code to read information from code memory and data memory from a set of locations.

13.a. Explain dynamic priority algorithm in scheduling. .Schedule the following task set with MS algorithm (priority P1,P2,P3 order)

Process	exe time	period
P1	1	4
P2	2	6
P3	2	15

(OR)

b. Explain in detail context switching and its overhead with example. Discuss how it affects the system performance

14.a. Write an embedded C program that reads data from P2.5 and send it to P0.4 . While simultaneously generating square wave of 10KHz on P1.0 Assume XTAL=22Mhz

(OR)

b. Write an embedded C program to receive data serially and send it to P2. Read port 0 and give copy to P1. Assume XTAL=11.0592MHz, Set baud rate as 4800

15.a. Discuss in detail about different design issues in embedded system design

(OR)

b. Design a controller for a traffic signal . Identify the function to implement the system and write the code for the same