B.E. (Computer Technology) VI Semester (C.B.S.) Examination

EMBEDDED SYSTEM DESIGN

Time : Three Hours]   [Maximum Marks : 80

Note : 1. All questions carry marks as indicated.

2. Solve Question No. 1 OR Question. No. 2

3. Solve Question No. 3 OR Question No. 4

4. Solve Question No. 5 OR Question No. 6

5. Solve Question No. 7 OR Question No. 8

6. Solve Question No. 9 OR Question No. 10

7. Solve Question No. 11 OR Question No. 12

8. Due credit will be given to neatness and adequate dimensions.

1. Write a short note on:

    i)   In-circuit Emulator.   3

    ii) Target and Host System.   3

    iii) Elements of ES   4

    iv) Characteristics of an ES   4

                    OR

2. a) Write about tasks and task stator in RTOS.   7

   b) Explain scheduler with proper example.   7

3. a) What do you mean by priority inversion problem? What are the solution provided for it? 6

   b) Explain hardware and software co-design issues of an ES. 7

OR

4. a) Explain semaphore problems in detail with suitable example. 6

   b) What do you mean by gray area of reenhancy? Explain with example. 7

5. a) Explain different Real Time OS services. 7

   b) Answer the following questions with proper diagram regarding interrupt in 8051.
   i) How interrupt routine should work?
   ii) What would really happen?
   iii) How interrupt routine do work? 6

OR

6. a) Give the detail case study of Telegraph system. 7

   b) Give the detail case study of Bar Code Scanner. 6

7. a) Explain in brief the 8051 oscillator and clock. 7

   b) Explain the various modes of serial communication for serial devices. Give one example of each. 7

OR

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8. a) Write a short note on: (any one)　　　　5

   i) Mode 2 timer programming

   ii) Loop and jump instructions of 8051.

   b) Find a m/c cycle of 1.085 μs Find the time delay in the following subroutine

   DELAY:

   　　　　MOV R2, #200

   AGAIN: MOV R3, #250

   HERE: NOP

   　　　　NOP

   　　　　DJNZ R3, HERE

   　　　　DJNZ R2, AGAIN

   　　　　RET　　　　9

9. a) Write a short note on:

   i) ALE　　　　2

   ii) XTAL 1　　　　2

   iii) 8051 Data Types and Directives　　　4

   b) Write in detail addressing modes of 8051.　　5

   OR

10. a) Explain in detail Interrupt Enable (IE) register.
   　　　　6

   b) Explain steps require to execute an interrupt. 7

11. a) Write a note on: 6
   i) UART
   ii) RS-232

   b) WAP that continuously gets 8-bits of data from P_0 to sends it to P_1 while simultaneously creating a square wave of 200 μs period on pin P 2.1. Use timer 0 to create square wave

      XTAL = 11.0592 MHz.   7

<div align="center">OR</div>

12. a) Give the interfacing of LCD to the 8051 explain in detail.   6

   b) Generate the sine wave as an example of interfacing A DAC to the 8051. Explain in detail.   7