

PMM/KS/15/7095

**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. 6
- i) How interrupt routine should work?
- ii) What would really happen?
- iii) How interrupt routine do work?

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

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 $1.085 \mu\text{s}$ 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 μ s period on pin P 2.1. Use timer 0 to create square wave

XTAL = 11.0592 MHz. 7

OR

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

