

**6E3205**

Roll No.

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**6E3205**

**B. Tech. VI Sem. (Main & Back) Exam., May/June-2014**

**Computer Engineering**

**6CS5 Embedded System Design**

**Time: 3 Hours**

**Maximum Marks: 80**

**Min. Passing Marks: 24**

**Instructions to Candidates:-**

*Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.*

*Units of quantities used/ calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.*

1. \_\_\_\_\_ Nil

2. \_\_\_\_\_ Nil

### **UNIT-I**

- Q.1 (a) What is an embedded system? [2]
- (b) Explain briefly embedded development environment. [8]
- (c) Write the difference between microprocessor and microcontroller. [6]

**OR**

- Q.1 (a) What are the parameters of choosing a microcontroller? [8]
- (b) Explain SOC in an embedded system. [8]

## UNIT-II

- Q.2 (a) What are different types of addressing modes in MSP430? Explain with example. [8]
- (b) Explain MSP430 interrupts and interrupt structure. [8]

### OR

Q.2 Discuss following with diagram:

- (i) LED, LCD interfacing [4]
- (ii) Seven segment interfacing [4]
- (iii) ADC interfacing [4]
- (iv) DAC interfacing [4]

## UNIT-III

- Q.3 (a) How many registers are in ARM? Explain CPSR. [8]
- (b) What is pipelining in ARM? Explain three stage pipelining. [8]

### OR

- Q.3 (a) Explain stack operation in ARM with stacks instructions. [8]
- (b) Explain Exception and its mode in ARM. [8]

## UNIT-IV

Q.4 Explain following in 8051 microcontroller:

- (i) Internal architecture with diagram. [8]
- (ii) Interrupt programming. [8]

**OR**

Q.4 Explain following in 8051 micro controller

- (i) Addressing mode with example. [8]
- (ii) Different groups of instruction set with one instruction from each group. [8]

**UNIT-V**

Q.5 Discuss in embedded system:

- (i) Energy meter [4]
- (ii) Smoke detector [4]
- (iii) CPU performance issue [4]
- (iv) Program execution time analysis issue [4]

**OR**

Q.5 Discuss in embedded system:

- (i) Wireless sensor network [4]
- (ii) Data acquisition system [4]
- (iii) CPU power consumption issue [4]
- (iv) Low power programming's in interrupts. [4]

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