Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH(EIE-NEW)/SEM-8/EC-802B/2010

2010

EMBEDDED SYSTEM

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

   i) Which of the following has highest storage performance ?

   a) DRAM b) SRAM

   c) OTP ROM d) Masked ROM.

   ii) Which one of the following scheduling algorithms checks the rate of occurrence of the task ?

   a) DMA b) EDF

   c) Co-operative d) All of these.

   iii) 8051 is a ..... bit microcontroller.

   a) 16 b) 8

   c) 32 d) None of these.

iv) Which of the following is commercially claimed RTOSS ?

a) Linux b) Windows

c) Window NT d) VX Works.

v) A small scale embedded system is designed with ..... bit microcontroller.

a) 8 b) 16

c) 32 d) 8 or 16.

vi) Which is the heart of an embedded system ?

a) Interrupt controller b) Processor

c) I/O devices d) power supply.

vii) In successive approximation method conversion time is equal to ..... for 8-bit system running with 1 MHz clock.

a) 8 μsec b) 4 μsec

c) 1 μsec d) none of these.

viii) A model in which there are finite states, which had given a set of inputs or state changes according to the state transition function is

a) FSM

b) ADFG

c) DFG

d) State transition function.

ix) A program that conmbines object code files into an executable program is called a

a) Compiler b) Linker

c) Loader d) Assembler.

x) Which of the following is volatile memory ?

a) EEPROM b) SRAM

c) NV RAM d) Flash memory EPROM.

xi) Automobile engine control system is the example of

a) soft real sime b) hard real sime

c) both of these d) none of these.

xii) Which of the following devices is not an embedded system ?

a) Cell phone b) Mainframe

c) Modem d) Automobile.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. a) What are the major functions of RTOS ?

b) What are the job scheduling algorithms in RTOS ? 2 + 3

3. Compare Von-Neumann and Harvard architectures of a processor based system. 5

4. Compare Full-Custom (VLSI) IC Technology and Semi-Custom (ASIC) IC Technology. 5

5. Describe the Moore's law in embedded system. 5

6. Compare RISC and CISC architectures. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) How will you classify an embedded system ?

   b) Describe the different components of an embedded system.

   c) What are the various models that can be employed during the design of embedded software ? 5 + 5 + 5

8. a) Describe the different types of memories used in a embedded system.

   b) What are the specific features of an embedded system processor.

   c) Discuss embedded system development cycle. 5 + 5 + 5

9. a) What is DMAC ? Describe DMAC with the suitable block diagram.

   b) Write a note on IC Manufacturing Steps of an embedded system.

   c) What are the constraints of an Embedded System Design ? 7 + 5 + 3

10. a) What is ARM processor ? Describe different Blocks of ARM processor.

    b) Write down the features of UML.

    c) Describe 'Inter Process Communication' terms in Embedded system. 7 + 4 + 4

11. Write short notes on any *three* of the following : 3 × 5

    a) PLD (Programmable Logic Device)

    b) HDLC

    c) DSP based controller

    d) FPGA.