C 58395 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2009

CS/~~IT~~ 04 601—EMBEDDED SYSTEM

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

1. (a) What are sophisticated embedded systems ? Explain.

   (b) What is meant by system-on-chip (SOC) ? Also list the typical components that may be embedded in an SOC.

   (c) Draw the memory map for Princeton architecture and explain.

   (d) List the characteristics of synchronous and asynchronous communication.

   (e) Explain the terms :

   (i) Dead-line ; (ii) Interrupt latency.

   (f) Give examples for Linux drivers and briefly explain about each one.

   (g) How the pre-emptive schedules must take into account the three types of tasks ?

   (h) What should be the OS security policy ?

   (8 × 5 = 40 marks)

2. (a) List the various software tools used in the design of an embedded system and explain about each one.

   Or

   (b) (i) Draw the block diagram form of functional circuits in a chip or core of micro-controller and explain.

   (8 marks)

   (ii) What are application specific system processors (ASSPs) ? Name the applications where ASSP is necessary.

   (7 marks)

3. (a) List and explain the functions of the structural units of general purpose processors.

   Or

   (b) Discuss about :

   (i) USB bus. (7 marks)

   (ii) Advanced serial highspeed buses. (8 marks)

Turn over

4. (a) What is meant by memory optimization ? Also list and explain steps used for optimising the use of memory in a system.

Or

(b) Explain the use of data flow graph (DFG) and control data flow graph for program analysis. (15 marks)

5. (a) List and explain the points to be taken into account for synchronization between the processes.

Or

(b) With the help of suitable example, explain how an RTOs takes care of schedule management for multiple tasks. (15 marks)

(4 × 15 = 60 marks)