C 32016 (Pages 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Tech. (ENGINEERING) DEGREE EXAMINATION, JUNE 2007

CS/IT 04 601—EMBEDDED SYSTEM

(2004 Admissions)

Time : Three Hours Maximum : 100 Marks

Answer all *questions.*

I. (a) What are configurable and non-configurable processors ?

(b) When do we need an RTOS and when do we need multitasking OS ?

(c) Compare RISC with CISC.

(d) Name the different data structures commonly used in an embedded system.

(e) What is meant by optimization of memory ? What are the advantages of this optimization ?

(f) Name the commonly used models for modeling the data paths and program flow of a software during a software analysis.

(g) Give the list of basic actions in a preemptive RTOS.

(h) List the important security functions.

(8 × 5 = 40 marks)

II. (a) Discuss about :

(i) Embedded processors for complex system.

(ii) Digital signal processors.

(iii) Application specific system processors.

(3 × 5 = 15 marks)

Or

(b) Explain how software for device drivers and device management can be developed using an operating system.

III. (a) (i) List and explain the characteristics that are to be taken into consideration while interfacing a device port.

(9 marks)

(ii) Draw the memory map for Princeton and Harvard architecture. (6 marks)

Or

(b) With the help of diagram explain how memory devices and I/O ports can be interfaced to 8051 microcontroller.

Turn over

IV. (a) Explain how data flow graph can be used for program analysis.

Or

(b) Distinguish between function, ISR and tasks.

V. (a) Explain the control flow strategy, data flow strategy and control-data flow strategy of a scheduler.

Or

(b) Discuss about Schedule management for multiple tasks by an RTOS.

[4 × 15 = 60 marks]