Reg. No. : | | | | | | | | | | | |

# C 3343

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Sixth Semester

Computer Science and Engineering

IT 1353 — EMBEDDED SYSTEMS

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is FPGA?

2. What is the role of device programmer?

3. Define ISO synchronous communication.

4. What is a free running counter?

5. List the uses of recursive functions.

6. List the advantages in assembly language coding for an application.

7. What are the OS units in RTOS kernel?

8. When do you use co-operative scheduling and when preemptive?

9. What is counting semaphore?

10. Define Task delay and Task spawning.

PART B — ($5 \times 16 = 80$ marks)

11. (a) Explain in detail about the software embedded into a system. (16)

Or

(b) Discuss in detail about embedded system-on-chip and in VLSI circuit with example. (16)

12. (a) (i) Discuss about the parallel port devices. (8)

(ii) Discuss about sophisticated interfacing features in device ports. (8)

Or

(b) Discuss in detail about serial communication using $I^2C$, CAN and advanced I/O buses. (16)

13. (a) (i) Compare programming in Assembly language and in High level language 'C'. (8)

(ii) Discuss the use of pointers and NULL pointers. (8)

Or

(b) (i) Compare 'C' program compiler and cross-compiler. (7)

(ii) Discuss the steps used for optimising the use of memory in a system. (9)

14. (a) Explain the following scheduling in RTOS :

(i) Co-operative Round-Robin scheduling. (3)

(ii) Pre-emptive scheduling model strategy by a scheduler. (7)

(iii) Fixed real time scheduling of tasks. (6)

Or

(b) Discuss in detail about functions of Message queues, Mail boxes and Pipes. (16)

15. (a) Discuss the following in MicroC/OS-II :

(i) Semaphore related functions. (8)

(ii) Mailbox related functions. (8)

Or

(b) Perform the case study for an automatic chocolate vending machine using MUCOS RTOS. (16)

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