Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 31224

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Seventh Semester

Electronics and Communication Engineering

EC 1316 — EMBEDDED SYSTEMS

(Common to EC 13064 Embedded Systems for Fifth Semester Information Technology)

(Regulation 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Write the real time constraints of embedded systems.

2.   Mention the major hardware components used for the design of an embedded system.

3.   Give a brief comment on the features of I^2C Bus.

4.   Specify the special applications scope of CAN.

5.   State the use of NULL pointer in C programs.

6.   What are the special features of object oriented programming?

7.   What is critical section?

8.   How do pipes improve the performance of RTOS?

9.   What are RTOS system level functions? Give examples.

10. Mention the problems related with Memory allocation in RTOS.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With example explain the classification of embedded systems. (8)

    (ii) Discuss the design possibilities of Embedded systems on a chip. (8)

Or

    (b) (i) Describe the important features of exemplary embedded systems. (10)

    (ii) Discuss the concepts and types of software embedding into the system. (6)

12. (a) (i) Draw an interface diagram for synchronous and asynchronous communication from serial I/O devices to processor. (8)

    (ii) Summarise the specifications of PCI and ISA buses. (8)

Or

    (b) (i) Describe the construction and working of internal serial communication devices in embedded system. (8)

    (ii) With suitable diagrams explain the interfacing of any two devices through ports. (8)

13. (a) (i) Compare and contrast the characteristics of assembly language programming and high level language program. (9)

    (ii) Discuss the requirements and functions of cross compilers. (7)

Or

    (b) (i) With an example explain the use of nested function calls. (8)

    (ii) Explain the design details and role of any two interrupt service routines. (8)

14. (a) (i) Discuss the services and functions of RTOS. (8)

    (ii) Explain the techniques used for static task scheduling in RTOS. (8)

Or

    (b) (i) With an example explain Co-operative round robin scheduling. (10)

    (ii) Write notes on IPC using signals. (6)

15. (a) Describe the design details and features of Micro C Real Time Operating System. (16)

Or

    (b) For a car cruise control, design an RTOS and analyse its performance for better driver assistance. (16)

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