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

Question Paper Code : 51215

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Electronics and Communication Engineering

EC 1316 — EMBEDDED SYSTEMS

(Common to Seventh Semester – Computer Science and Engineering)

(Also Common to EC 1306 A – Embedded Systems for Information Technology – Fifth Semester)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the major hardware units in an embedded system.

2. Specify any two examples for exemplary embedded systems.

3. How is asynchronous serial communication performed?

4. List the features of I^2C.

5. How are multiple function call in cyclic order handled by the system?

6. Differentiate the function of compiler and cross compiler.

7. Give the definition of a Process, Task and Thread.

8. State the principle of Real time task scheduling.

9. Mention the functions of RTOS in memory allocation.

10. List the major steps involved in programming with RTOS.

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PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the classification of processors used in the embedded systems. (8)

(ii) Explain how the software is embedded into the target system. (8)

Or

(b) Discuss in detail the embedded system design using SoC concept and VLSI design. (16)

12. (a) Explain in detail the function of the internal serial communication devices UART and HDLC. (16)

Or

(b) (i) Explain the function and applications of CAN bus. (8)

(ii) Explain in detail the features and function of PCI and PCI-X buses. (8)

13. (a) (i) With example, explain the use of pointers in the execution of function calls. (8)

(ii) Explain the use of function queues in programming. (8)

Or

(b) (i) Explain the use of object oriented programming concepts in embedded programming. (8)

(ii) Explain how memory operations are optimized in embedded programming. (8)

14. (a) (i) Explain the RTOS services related to handle file system and interrupt routines. (10)

(ii) Describe how the performance of task scheduling algorithm is evaluated. (6)

Or

(b) Discuss in detail the use of semaphore, message queues and mail boxes with suitable examples. (16)

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15. (a) (i) Describe the significant features of V_x works RTOS. (8)

(ii) Discuss about the system level functions of RTOS. (8)

Or

(b) (i) Explain the Time delay functions performed by RTOS. (8)

(ii) Discuss about the issues in programming with RTOS. (8)

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