

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 41214

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Seventh Semester

Electronics and Communication Engineering

EC 1316 — EMBEDDED SYSTEMS

(Common to EC 1306 A 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. What is RTC? State any two applications.
4. List the characteristic of synchronous communication.
5. State the function of queue pointers.
6. What is a cross compiler?
7. Differentiate process and thread.
8. State the principle of real time task scheduling.
9. Mention any four memory related functions.
10. What is the necessity for IPC in RTOS?

PART B — (5 × 16 = 80 marks)

11. (a) (i) With an 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) Discuss on parallel port devices. (8)
(ii) Explain the hardware and software timer used in embedded systems. (8)

Or

- (b) Explain the features of buses and the common modes used for parallel communication.

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 file system organization and implementation in RTOS. (8)
(ii) Explain the principle of preemptive scheduling and its critical section service. (8)

Or

- (b) (i) Explain the priority inversion problem and its solution. (8)
(ii) Describe the semaphore flag based interprocess communication. (8)

15. (a) Discuss the design considerations and functions of any one RTOS.

Or

- (b) Explain the RTOS for multitasking in real time implementation with an example.