

LIB
13/12/13 FN

Reg. No. :

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

Question Paper Code : 33528

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

Sixth Semester

Computer Science and Engineering

IT 1353/EC 1401 A/070250057/070250062 — EMBEDDED SYSTEMS

(Common to Information Technology and Eighth Semester – Electronics and
Communication Engineering)

(Regulation 2004/2007)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define embedded system. What are the three main components of an embedded system?
2. Differentiate between RISC and CISC processors.
3. List IO Device types, citing an example for each.
4. State any four sophisticated interfacing features in device ports.
5. Define reentrant function.
6. Explain the importance of the following declarations: static, volatile and interrupt.
7. What should be the goal of an OS?
8. Define process, task and thread.
9. Give the mechanisms of Inter Process communication.
10. Compare taskLock() and intLock().

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the parameters to be considered in ADC application? (4)
(ii) Explain the process of converting an ALP into machine implementable file. (12)

Or

- (b) Draw and explain the functional block diagram of microcontroller based embedded system. (16)

12. (a) (i) Enumerate the formats of bits in a synchronous HDLC protocol based network device. (8)
- (ii) What is UART? Discuss the handshaking process in UART serial port. (8)

Or

- (b) Describe the various interfacing features available in port devices. (16)
13. (a) Explain the following programming elements with suitable syntax and examples.
- (i) Include directories (8)
- (ii) Source files (2)
- (iii) Configuration files (2)
- (iv) Preprocessor directives. (4)

Or

- (b) (i) Discuss about the usage of function calls in embedded 'C' language. (8)
- (ii) Discuss about the multiple function calls in cyclic order. (8)
14. (a) (i) Explain the various alternatives for responding to a hardware source call on interrupts with necessary diagrams. (8)
- (ii) When is an RTOs necessary and when it is not necessary in the embedded system? (4 + 4)

Or

- (b) (i) Explain any two task scheduling models. (10)
- (ii) Compare the models based on interrupt latency and response time. (6)
15. (a) Explain the Queue-related functions of MUCOS.

Or

- (b) Discuss the design of an automatic vending machine using RTOs.
-