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

Question Paper Code: 31744

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Seventh Semester

Electronics and Communication Engineering

01UEC704 - EMBEDDED AND REAL TIME SYSTEMS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the functions of ARM processor in supervisor mode.
2. How is ARM processor different from other processors?
3. What is a data flow graph?
4. What does a linker do?
5. Define context switching.
6. What are the three conditions that must be satisfied by the re-entrant function?
7. What is the use of attached accelerator to CPU?
8. Differentiate counter semaphore and binary semaphores.
9. What are FOSS tools for embedded systems?
10. Give the steps to destroy a message queue.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) What are the parameters to be considered while designing an embedded system process? (8)

    (ii) Explain about cache memory in ARM processor. (8)

Or

(b) (i) Analyze the concept of pipelining. (8)

(ii) Determine various instruction set preliminaries of ARM processor. (8)

12. (a) Explain on how on chip memory management schemes can improve higher speed process. (16)

Or

(b) (i) List the various compiler optimization techniques. (8)

(ii) How do you test the microcontroller based electronic voting machine. (8)

13. (a) (i) Describe process scheduling in detail. (8)

(ii) Enumerate the context switch mechanism for moving the CPU from one executing process to another. (8)

Or

(b) Describe in detail about the inter process communication mechanism. (16)

14. (a) (i) Illustrate about the cache problem in a system involving an accelerator and suggest a method to overcome it. (8)

(ii) Discuss in detail about I^2C bus. (8)

Or

(b) Demonstrate the operation of Internet enabled system. With a suitable example. (16)

15. (a) Discuss about the design of data compressor in detail. (16)

Or

(b) Write shorts notes on the following:

(i) FOSS tools for embedded system development. (8)

(ii) Personal digital assistant. (8)