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**Question Paper Code : 21340**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Eighth Semester

Electronics and Communication Engineering

EC 2042/EC 801 — EMBEDDED AND REAL TIME SYSTEMS

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the Instruction set features useful for embedded programming?
2. What are the parameters used to evaluate the CPU performance?
3. What are the different CPU buses? State the function of each one.
4. State the principle of basic complication technique.
5. List the process scheduling policies.
6. What are the power optimization strategies used for processes?
7. What is the use of attaching accelerator to CPU?
8. State the important requirements to develop Network based embedded systems.
9. List the major components in the Personal Digital Assistants System.
10. What are FOSS Tools?

PART B — (5 × 16 = 80 marks)

11. (a) Explain in detail the design steps of Modern Train controller with suitable diagrams. (16)

Or

- (b) (i) Describe the structural and Behavioral descriptions of methods used for designing an embedded system. (8)
- (ii) Explain the ARM process or features and modes of operations. (8)

12. (a) (i) Describe the system bus configuration and explain the bus protocol. (8)  
(ii) Explain the debugging techniques used in embedded system. (8)

Or

- (b) (i) Discuss in detail the fundamental model used for program development. (8)  
(ii) Describe the techniques used for Program Validation and Testing. (8)

13. (a) Explain the principle of priority based context switching mechanism. Discuss about the various priority based scheduling algorithms. (16)

Or

- (b) Explain in detail how shared memory and message passing mechanisms are used for Inter process communication. (16)

14. (a) (i) Explain the Accelerated system design. List its advantages. (8)  
(ii) Explain any one type of network used for embedded system design. (8)

Or

- (b) Explain how Internet can be used by embedded computing systems. (16)

15. (a) Explain the Hardware and Software design for Set-Top-Box. (16)

Or

- (b) Discuss about the design of Data compressor and System-on-Silicon. (16)