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Question Paper Code : 52578

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

Eighth Semester

Electronics and Communication Engineering

EC2042 / EC 801 – EMBEDDED AND REAL TIME SYSTEMS

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Why embedded computing is more suitable for real time systems ?
2. List the major functions of CPU in Supervisor mode.
3. Show the structure of a typical CPU bus which supports Read/Write.
4. How the program validation can be done ?
5. Define the process states : Waiting, Ready, Executing.
6. What are the strategies used for the power optimization in Multi processing ?
7. Justify that an Accelerator is not a Coprocessor.
8. Why do we build network based embedded systems ?
9. What is the need for Hardware and Software codesign for a Data compressor ?
10. What are POSS tools ?

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Write in detail about the steps in Embedded system design process. (8)
(ii) Explain the operation of ARM processor. (8)

OR

- (b) Explain in detail the memory system mechanism and CPU performance in a Coprocessor system. (16)

12. (a) (i) Describe the basic types of memory components commonly used in embedded systems. (8)
(ii) Explain the challenges and techniques used for embedded system debugging. (8)

OR

- (b) Discuss in detail the program level embedded system performance analysis and explain the optimization of program-level energy, power and program size. (16)

13. (a) (i) Explain how the multiple tasks and multiple processes are handled in embedded computing systems. (8)
(ii) Explain the various process scheduling policies. (8)

OR

- (b) Explain in detail how the interprocess communication is provided by Operating System using shared memory and message passing mechanisms. (16)

14. (a) (i) Explain the operation and advantages of CPU Accelerated Systems. (8)
(ii) Explain the features and applications of Internet enabled embedded systems. (8)

OR

- (b) Discuss in detail about the several interconnected networks used especially for distributed embedded computing. (16)

15. (a) Explain in detail about the hardware and software design of the Personal digital assistants. (16)

OR

- (b) Explain the hardware and software design involved in Software Modem in detail. (16)