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Question Paper Code : 60425

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Eighth Semester

Electronics and Communication Engineering

EC 2042/EC 801 – EMBEDDED AND REAL TIME SYSTEMS

(Regulations 2008)

(Common to PTEC 2042 – Embedded and Real Time Systems for B.E. (Part-Time)
Seventh Semester – ECE – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Enumerate various issues in real time computing.
2. Write short notes on CPU power consumption.
3. What is a bridge? Where it is applied?
4. Draw the data flow graph for the block shown below.
 $r = a + b - c ;$
 $s = a * r ;$
 $t = b - d ;$
 $r = d + e ;$
5. What are the major inter process communication mechanisms?
6. Define context switching.
7. What are the merits of embedded distributed architecture?
8. What is the role played by the accelerator in the design of embedded system?
9. What is hardware and software co-design?
10. Give any two advantages of Data Compressor.

PART B — (5 × 16 = 80 marks)

11. (a) Explain in detail the operation of ARM processor and coprocessor. (16)

Or

- (b) (i) With a simple system namely, a model train controller, how will you use the UML to model systems? - (8)
(ii) Explain the operation of the BL instruction, including the state of ARM registers before and after its operation. (4)
(iii) How do you return from an ARM procedure? (4)

12. (a) Describe about Memory devices with suitable examples. (16)

Or

- (b) Discuss in detail about assembly and linking with examples. (16)

13. (a) Discuss about multiple process and interprocess communication mechanisms.

Or

- (b) Describe any two scheduling policies used in multiprocess environment.

14. (a) Explain the accelerated system design process with the suitable example.

Or

- (b) (i) Explain the working of CAN Bus and Ethernet. (10)
(ii) With a suitable example explain the operation of Internet enabled system. (6)

15. (a) (i) Justify through two features on how system on chip design is useful? (4)

- (ii) Enumerate some of the FOSS tools for embedded system development and explain. (12)

Or

- (b) Write short notes on :

- (i) PDAs (8)

- (ii) Set-Top Box. (8)