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

Question Paper Code : X60422

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Eighth Semester
Electronics and Communication Engineering
EC 2042/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. Enumerate various issues in real time computing.
2. Write short notes on CPU power consumption.
3. What are the different CPU buses ? State the function of each one.
4. State the principle of basic complication technique.
5. What is context switching ?
6. What does a scheduler do, in an operating system environment ?
7. What do you mean by hardware accelerator ?
8. State the advantages of network based design.
9. Write short notes on H/W and S/W Co-design.
10. What are FOSS tools for Embedded Systems ?

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) i) How are memory and I/O devices interfaced with a processor ? **(10)**

ii) Explain about how assembler helps in the development of program design. **(6)**

(OR)

b) i) With a suitable example explain how debugging is carried out using Debuggers and compilers. **(10)**

ii) How is a program tested for its validity ? Explain. **(6)**

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) 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) Discuss about data compressor in detail with suitable diagrams. **(16)**

(OR)

b) Explain about Software modem with neat sketch. **(16)**

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