Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 81057

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Second Semester

Applied Electronics

AP 9224/AP 924/CU 990/UAP 9163/10244 AE 204 — EMBEDDED SYSTEMS

(Common to M.E. VLSI Design, M.E. Communication Systems and M.E. Computer and Communication)

(Regulation 2009/2010)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Differentiate between requirement and specification.

2.   What is meant by load and store architecture?

3.   Draw the state diagram for bus read transaction between CPU and input device.

4.   State the role of ICE in debugging.

5.   Define distributed embedded system.

6.   What is Myrinet?

7.   Compare and Contrast online versus off-line scheduling.

8.   Name the various approaches available for scheduling.

9.   Brief on the waterflow model of design flow schematically.

10. Differentiate between functional and non-functional requirements.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the functions performed by the major abstraction levels in embedded design process.

Or

(b) (i) Define the types of relationships that exist between objects and classes using UML. (8)

   (ii) Discuss the data operations of ARM processor. (8)

12. (a) For an alarm clock design example, form the requirements table, list the specifications and discuss the architecture.

Or

(b) (i) Write a brief note on the different types of memory devices used in embedded system design process. (8)

   (ii) Explain the system Bus configuration of ARM processor. (8)

13. (a) Explain the architecture of CAN bus and its use in automotive embedded design.

Or

(b) Discuss in detail the uses of distributed embedded system in the design of Elevator controller with architecture.

14. (a) Explain the RMS algorithm with an example to schedule multiple processes and compare the performance with EDF algorithm.

Or

(b) (i) Write a note on interprocess communication mechanisms. (8)

   (ii) In detail, explain the challenges associated in validating timing constraints for priority driven systems. (8)

15. (a) (i) What are the goals to be met in the embedded system design process and how can these goals be met efficiently?

   (ii) Discuss on the quality assurance techniques.

Or

(b) Explain the advanced techniques for specification and how this specification is turned into an architecture design for a typical example.

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