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

Question Paper Code: 42274

M.E. DEGREE EXAMINATION, MAY 2015.

Second Semester

VLSI Design

14PVL204 – REAL TIME EMBEDDED SYSTEMS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (5 x 1 = 5 Marks)

1. In object and class relationship a complex object made of smaller objects describes

   (a) Association (b) Generalization (c) Aggregation (d) Composition

2. In PIC16F microcontroller the program counter has

   (a) 4 bits (b) 8 bits (c) 12 bits (d) 13 bits

3. Control of the CAN bus is arbitrated using a technique called

   (a) CSMA (b) CSMA/CD (c) CSMA/AMP (d) Token ring

4. EDF is a

   (a) Dynamic priority scheme (b) Static priority scheme

   (c) Priority policy (d) Context switching

5. In CRC card the logical groupings of data and functionality is defined as

   (a) Classes (b) Responsibilities

   (c) Collaborators (d) UML

PART - B (5 x 3 = 15 Marks)

6. Mention the challenges in embedded computing system design.

7. Write short notes on Busy-wait I/O.

8. List the features of the I^2C bus.

9. What is offline versus online scheduling?

10. What are the types of requirements? List out its basic characteristics.

PART - C (5 x 16 = 80 Marks)

11. (a) Summarize the major steps in the embedded system design process. (16)

Or

(b) Explain in detail the various steps involved in design of a model train controller. (16)

12. (a) Discuss in detail about data operations and flow of control in ARM processors. (16)

Or

(b) Describe in detail about the design of an alarm clock. (16)

13. (a) Write notes on

(i) CAN bus structure (10)

(ii) Myrinet (6)

Or

(b) Illustrate the scheduling and allocation in distributed embedded system. (16)

14. (a) Explain the weighted Round Robin scheduling algorithm in detail. (16)

Or

(b) Discuss in detail about the EDF scheduling algorithm. (16)

15. (a) (i) With neat sketch explain spiral model of software design. (6)

(ii) Discuss in detail about quality assurance techniques. (10)

Or

(b) Explain about the hardware and software design of set-top boxes. (16)