Code No. 5107

FACULTY OF ENGINEERING

B.E. 4/4 (E&EE / Inst.) I - Semester **(Main)** Examination, December 2011

Subject : **Principles and Applications of Embedded Systems**
(Elective – I)

Time : 3 Hours Max. Marks: 75

Note: Answer **all** questions of Part – A. Answer any five questions from Part-B.

PART – A (25 Marks)

1. What are general purpose and special-purpose systems? (2)
2. Why micro controllers are used to design Embedded systems ? (2)
3. Illustrate the Interrupt mechanism. (2)
4. Distinguish between one-type and two-type instruction in 8051. (2)
5. Write two features of μC – OS. (2)
6. Write the differences between Hard and Soft real time systems. (3)
7. What are the different modes used in timer functions? (3)
8. Write about P and V – operations in semaphores. (3)
9. Differentiate between I^2C and CAN. (3)
10. Write the functions to be implemented by elevator controller systems. (3)

PART – B (5x10=50 Marks)

11.(a) What are the challenges in embedded system design?
(b) Draw the states for designing a traffic control system.

12.(a) Write an assembly language program to add two 16-bit numbers.
(b) Write the architecture, Register structure and memory in 8051.

13.(a) Explain D/A converter with its functions.
(b) Write about the power constraints in designing embedded system.

14.(a) Discuss the Instruction level parallelism, with example.
(b) What is memory hierarchy? Explain.

15. Write the instruction and memory organization in ARM – processor in detail.

16. Explain the techniques to develop an embedded software.

17. Discuss the Semaphores, Message queues in RTOs.

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