

FACULTY OF ENGINEERING

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

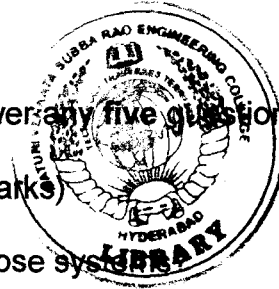
Subject : **Principles and Applications of Embedded Systems**
(Elective – I)

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 $\mu C - OS$. (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 I²C 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.