



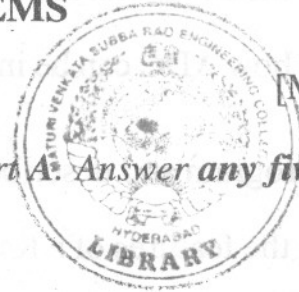
Code No. : 6487/N

FACULTY OF INFORMATICS
B.E. 4/4 (IT) II Sem. (New) (Main) Examination, June 2010
EMBEDDED SYSTEMS

Time: 3 Hours]

[Max. Marks: 75

Note : Answer all questions from Part A. Answer any five questions from Part B.



PART – A (25 Marks)

1. Give 8051 micro controller architecture. 3
2. Describe serial data input-output interface to a 8051 micro-controller. 3
3. Explain the difference between RISC and CISC type of computing. 2
4. What are semaphores ? 2
5. Describe by writing a program, how decimal arithmetic is carried out using 8051 assembly language instructions. 2
6. Differentiate SJMP, AJMP and LJMP instructions of 8051. 2
7. Differentiate asynchronous and synchronous type of serial data transmissions. 3
8. Give two bus protocols that can be implemented on an ARM processor. 2
9. What is a mailbox ? How many messages can a mailbox store ? 3
10. Describe what is meant by instruction level parallelism. 3

PART – B (50 Marks)

11. a) Describe embedded system design process. 5
- b) Give an example showing an external interrupt switching a load using 8051 micro-controller. 5



12. a) Describe how a 4 digit seven segment display is interfaced to 8051 micro-controller with a suitable diagram. 6
- b) Describe the SFRs that handle the interrupts in 8051 micro-controller. 4
13. a) Describe how ADC can be interfaced to 8051 micro-controller along with a diagram. 5
- b) Write a program and describe, how pipe is different from a queue. 5
14. a) Describe the features of a Real Time Operating system. 5
- b) Describe the hard real time scheduling considerations. 5
15. a) Describe the various types of semaphores used for ensuring mutual exclusion. What is a spin well ? 6
- b) Describe the memory management functions of μ c/OSII. 4
16. Describe the problem of Elevator Control. Give the interfacing details showing the micro-controller and related peripherals. Explain how a program is developed for this Elevator Control. 10
17. a) How can CPU simulator be used for debugging purposes ? 5
- b) What problems are encountered while testing real time programs ? 5