2005-ANDHRA UNIVERSITY

IV B.TECH I SEMESTER DEGREE EXAMINATION

EMBEDDED SYSTEMS (ELECTIVE-I)

(INFORMATION TECHNOLOGY)

TIME-3HOUR
MARKS-70

SECTION A IS COMPULSORY.ATTEMPT ANY FOUR QUESTIONS FROM SECTION B.

SECTION A [5*2=10 MARKS]

1. a) What are fundamental requirements and perversities of Embedded Systems?

b) What are the factors that contribute to the best Interrupt latency?

c) What are the goals of testing and debugging process on a host machine

d) Give example code for one reentrant function and one non-reentrant function

e) What is the merit of using void * in implementing message queue?

SECTION B [4*15=60 MARKS]

2. a) Explain Atomic Operations. give any one atomic instruction for any processor known to you?

b) What is DMA? Give it's working in brief.

c) Explain any two schemes for inter task communication.

d) What is watchdog timer in a single board computer? Explan.

3. a) Identify the suitability of an RTOS with respect to any problem on hand with regard to scalability

b) What is data sharing problem in multi tasking environment? Explain.

4. a) Explain (i) Round Robin architecture. ii) Preemptive scheduling?

b) What is reentrancy? Give the necessary conditions to make a function reentrant.

5. a) Bring out the subtle differences between real time operating systems and typical (non real time) operating system?

b) Explain the architecture of function queue scheduling, write a C program for implementing the same.

6. What are the constituents of the Embedded software that ate required to make the target CPU (single board computer) to run, name them and explain each of them briefly?

7. Explain the following in brief (i) ROM Emulator (ii) In-Circuit-Emulator (iii) Flash memory.

8. Take up a problem of elevator for four floors, identify the number of tasks required, their priorities and their functions in the process of designing a an application software in Real Time.