

## ***B. Tech Degree VIII Semester (Supplementary) Examination September 2010***

### **CS 804 (A) REAL TIME SYSTEMS (2002 Scheme)**

Time : 3 Hours

Maximum Marks : 100

(All questions carry EQUAL marks)

- I. (a) With a block diagram explain the basic model of a real time system.  
(b) Explain *any five* applications of a real time system.
- OR**
- II. (a) What are the typical characteristics of a real time system?  
(b) Distinguish between hard and soft real time systems.
- III. (a) What are the necessary and sufficient condition for a set of tasks to be RMA schedulable?  
(b) Suppose  $c_i$  is the execution time and  $p_i$  is the period of periodic task  $T_i$ , check whether the following set of periodic real-time tasks is schedulable under RMA on a uniprocessor :
- $$T_1 = (c_1 = 20, p_1 = 100), T_2 = (c_2 = 30, p_2 = 150) \text{ and}$$
- $$T_3 = (c_3 = 60, p_3 = 200).$$
- OR**
- IV. (a) Describe the desired language characteristics for real time systems.  
(b) Discuss on Timing specifications in real-time systems.
- V. (a) Explain any two applications of real-time databases.  
(b) Distinguish between real-time Vs general purpose databases.
- OR**
- VI. (a) Discuss on disk scheduling algorithms.  
(b) Explain a Locking-based concurrency control protocol.
- VII. (a) Explain a token based protocol that can support real time communication.  
(b) Describe contention based protocols.
- OR**
- VIII. (a) What are the Network architectural issues in real-time Networks?  
(b) Describe the quality of service parameters required in real-time communications.
- IX. (a) Explain the nature and scope of fault tolerance techniques.  
(b) What are the causes of failures in real-time systems?
- OR**
- X. (a) Explain Integrated failure Handling.  
(b) Discuss on Fault Types.