

2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS  
**REAL TIME SYSTEMS**  
(INFORMATION TECHNOLOGY)

APR/MAY 2006

TIME - 3 HOUR  
MARK - 80

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**Answer any FIVE Questions**  
**All Questions carry equal marks**

1. (a) Define Real-Time System

(b) Discuss with help of a neat sketch the Computer Control System showing communication tasks. [4+12]

2. Discuss process-related interfaces for a Real Time Systems. [16]

3. Explain in detail, the following concepts

(a) Blocks

(b) Procedures and Functions

(c) Packages [4+5+7]

4. (a) List and explain the minimum set of operations that a RTOS kernel should support.

(b) With the help of diagram, explain the (input/output sub system)IOSS operations for Input of data. [8+8]

5. Discuss whether or not the following are hard, soft real time systems. Justify your answer.

a. A police database the provides information on stolen automobiles.

b. An automatic teller machine.

c. A universitys grade processing system, which takes grade sheets and generates report cards.

d. A computer controlled routing switch used by a phone company.

e. An Aircraft controller

f. Railway reservation system

g. An oven heat controller system

h. A Toy controller. [8x2-16]

6. (a) Why and how does multitasking approach deployed for the design of Real Time Systems?

(b) How do you handle the transaction priorities in real time databases? [10+6]

7. (a) Explain the organization of a disk system.

(b) Why is EDF not always optimal for disk access scheduling? Explain.

8. (a) What are the ways to obtain device failure rates? Explain.

(b) Give brief description about hardware and software reliability models.

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