

B.TECH., DEGREE EXAMINATIONS: NOV/DEC 2012

Seventh Semester .

INFORMATION TECHNOLOGY

ITY120: Real Time Systems

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The digital controller designed by starting with an analog controller that has the desired behavior and then transforming into a digital version is called
 - a) Discrete time data system
 - b) sampled data system.
 - c) Discrete State data system
 - d) Digital Data System
2. A set of data objects is said to be -----if the maximum difference in ages of the objects in the set is no greater than the relative consistency threshold used by the application.
 - a) relatively consistent
 - b) threshold consistent
 - c) relatively inconsistent
 - d) fully consistent
3. When the scheduler makes each scheduling decision without knowledge about the jobs that will be released in the future we use
 - a) off line scheduling algorithm
 - b) testing algorithm
 - c) on line scheduling algorithm
 - d) validation algorithm
4. A natural way to improve the response times of aperiodic jobs by executing the aperiodic jobs ahead of the periodic jobs whenever possible is called
 - a) aperiodic scheduling
 - b) resource sharing
 - c) preempting
 - d) slack stealing.
5. A scheduler which schedules jobs according to some priority-driven algorithm is
 - a) Periodic scheduler
 - b) Round robin scheduler
 - c) on-line scheduler
 - d) Off line scheduler
6. An algorithm which assigns reverse priorities to tasks based on their length of periods (higher priority for shorter period) is
 - a) Deadline monotonic algorithm
 - b) EDF algorithm
 - c) Dynamic algorithm
 - d) Rate monotonic algorithm
7. Priority-ceiling blocking is sometimes referred to as
 - a) avoidance blocking
 - b) Direct blocking
 - c) Preemptable blocking
 - d) Indirect blocking

b) Why are nonpreemptive algorithms non optimal? Explain with example.

23. a) Explain the iterative algorithm which enables to find a feasible cyclic schedule.

(OR)

b) Explain the process of slack stealing in deadline driven systems.

24. a) Explain with a complex example, how priority inheritance affects the way jobs are scheduled and executed in a Priority-Inheritance Protocol

(OR)

b) Explain how deadlock is avoided by Priority Ceiling Protocol.

25. a) Explain with diagram, non preemptive EDF algorithm for multiple processors. Show that it is not optimal for scheduling preemptable jobs on more than one processor.

(OR)

b) Explain the weighted round robin service for packet scheduling in networks.
