8E5005

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# B.Tech. (Sem.VIII) (Main/Back) Examination - 2013
## Computer Science
## 8CS4.2 Real Time Systems

Time : 3 Hours

[Total Marks : 80
[Min. Passing Marks : 24

Instructions to Candidates :
Attempt any five questions selecting one question from each unit. All questions carry equal marks.
Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed
and stated clearly. Units of quantities used/calculated must be stated clearly.

## UNIT - I

1.  (a)  Define Real Time System (RTS).                                    4
    (b)  What are the characteristics of R Time System?                    4
    (c)  What are the characteristics of Real Time System control?         8

**OR**

1.  (a)  Explain with example the various timing constraints.              8
    (b)  Differentiate with example, soft & hard RTS.                      8

## UNIT - II

2.  (a)  What are the functional parameters of Job? Explain.
    (b)  Explain briefly :
         (i) Dynamic v/s static system
         (ii) Offline scheduling v/s online scheduling                     8

**OR**

2.  (a)  Explain weighted round robin approach for RTS.                    8
    (b)  Explain briefly Data Dependency & its type.                       8

## UNIT - III

3.  Explain following :
    (a)  Priority driven approach for real time scheduling                 4
    (b)  General Structure of cyclic scheduler.                            4
    (c)  Rate monotonic (RM) algorithm.                                    4
    (d)  Advantages of clock driven scheduling.                           4

**OR**

3.  Explain following :
    (a)  Fixed Priority v/s Dynamic Priority scheduling.                   4
    (b)  Scheduling sporadic jobs.                                         4
    (c)  Deadline Monotonic (DM) algorithm.                               4
    (d)  Disadvantages of clock driven scheduling.                        4

## UNIT - IV

4. (a) What is a periodic task scheduling? Explain the assumption for a periodic task scheduling.    8
   (b) What is flexible application ? Explain.    8

**OR**

4. (a) Explain following :
      (i) Differ server
      (ii) Simple sporadic server    4×2=8
   (b) Explain scheduling approaches for periodic task.    8

## UNIT - V

5. Explain following :
   (a) Basic Priority ceiling protocol.    4
   (b) Concurrent access of Data objects.    4
   (c) Priority inheritance protocol for task execution.    4
   (d) Priority inversion and how it is related to critical section.    4

**OR**

5. (a) Differentiate between basic Priority ceiling protocol & priority inheritance protocol.    8
   (b) Give advantages and disadvantages of priority inheritance protocol.    8

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