8E8165

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B.Tech. VIII Semester (Main/Back) Examination, April/May - 2017
Computer Science & Engineering
8CS4.2A Real Time Systems

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 26

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 suitable be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Unit-I

1. a) Explain the basic model of real time system?   (8)

    b) Explain the Radar signal processing system with diagram.   (8)

                                    (OR)

1. a) Explain the difference between :   (4+4=8)

        i)   Tardiness v/s usefulness

        ii) Absolute deadline v/s relative Deadline

    b) Explain the difference between soft real time system and hard real time system?

                                                                             (8)

Unit-II

2. a) Explain the following :   (5+5)

        i)   Functional parameter of a job

        ii) Fixed, jittered and sporadic release time

    b) What do you mean by precedence constraints among the jobs? Explain. (6)

                                    (OR)

2. a) Describe clock driven and weighted round robin scheduling algorithm with example.   (10)

    b) Explain dynamic versus static system.   (6)

Unit-III

3. a) What are the frames and major cycles in cyclic schedules? What are the different frame size constraints? **(4+6)**

   b) What are the different method to improve the average response time of aperiodic jobs? Explain. **(6)**

(OR)

3. a) Explain RM and DM algorithm with suitable example. **(10)**

   b) What do you mean by fixed priority algorithm? Explain. **(6)**

Unit-IV

4. Explain the following in detail : **(8+8=16)**

   a) Polling server

   b) Deferrable server

(OR)

4. a) Explain the priority exchange algorithm. **(8)**

   b) What is flexible computation? Explain the characterization of flexible application. **(8)**

Unit-V

5. a) What is critical section? Explain mutual exclusion. **(8)**

   b) What do you mean by resource conflicts and blocking? Explain. **(8)**

(OR)

5. Explain the rules of basic priority ceiling protocol. Consider the following system of five jobs, schedule the following five jobs with basic priority ceiling protocol. **(6+10=16)**

Job	r_i	e_i	π_i	Critical section
J_1	7	3	1	[Shaded;1]
J_2	5	3	2	[black;1]
J_3	4	2	3	–
J_4	2	6	4	[Shaded; 4[black;1.5]]
J_5	0	6	5	[black; 4]