05/05/2016

8E8165

Roll No. _____ [Total No. of Pages :3

8E8165

B.Tech. VIII Semester (Main) Examination, April/May 2016

Computer Science & Engineering

8CS4.2A Real Time Systems

Time : 3 Hours

Maximum 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. What are the characteristics of real time system, explain with an example **(8)**

   b) What is signal processing system Explain with suitable example? What is the use of bandwidth demand in signal processing system **(8)**

OR

1. Briefly explain the following

   a) Block diagram of RTS

   b) Deadline and execution time

   c) Period and release time

   d) Effect of tardiness of job on soft and hard real time jobs **(4+4+4+4)**

Unit - II

2. a) What do you mean by precedence constraints? Explain precedence graph and task graph **(8)**

b) Describe weighted round robin approach to real time scheduling (8)

OR

2. a) What are the functional parameters of job? Explain (6)
   b) Explain following briefly (10)

   i) Data dependency and its types

   ii) Periodic and aperiodic task model

   iii) Clock driven scheduling

   iv) Scheduling criteria

Unit - III

3. a) Explain clock driven scheduling with suitable example (8)

   b) Explain following

   i) Rate monotonic(RM) algorithm. (4)

   ii) fixed priority v/s dynamic priority scheduling. (4)

OR

3. a) Explain non-optimality of EDF and LST algorithms (8)

   b) A system have tasks such as. (8)

   T_1=(10,2)

   T_2=(15,5)

   T_3=(25,9)

   Show the periodic task T_1, T_2, T_3 are schedulable by the RMA

Unit - IV

4. a) What is aperiodic task scheduling? Explain assumption and approaches for aperiodic task scheduling? (8)

   b) Explain slack stealing algorithm (8)

OR

4. Write short notes on

a) General structure of cyclic scheduling

b) Flexible applications

c) Simple Sporadic server

d) Firm deadline model (4+4+4+4)

Unit - V

5. a) What is RAC? Discuss the effects of resources contention (8)

b) Give advantages and disadvantages of priority inheritance protocol (8)

OR

5. a) What is priority inversion? Explain how it is related to critical section (8)

b) Explain use of priority ceiling protocol in dynamic priority system (8)
