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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Second Semester, M. Tech. – Computer Science Engineering (MCSE)
Semester End Examination; June - 2016
Real Time Operating System

Time: 3 hrs   *Max. Marks: 100*

Note: Answer **FIVE** full questions, selecting **ONE** full question from each **unit**.

UNIT - I

1. a. What is a Radar system? With a neat diagram explain the Radar Signal processing. 10

   b. With a neat diagram explain the Control Hierarchy. 6

   c. Differentiate between Absolute Temporal Consistency and Relative Temporal Consistency. 4

2. a. Define Real time Systems. Explain the Temporal Parameters of Real Time Workload. 10

   b. What is Periodic Task Model? Explain the Periodic, Aperodic and Sporadic tasks in detail. 10

UNIT - II

3. a. Explain in detail the General Structure of Cyclic Schedules and the constraints for choosing the frame size in cyclic scheduling. 10

   b. With respect to the scheduling of Sporadic tasks, explain the acceptance test and EDF scheduling of accepted jobs. 10

4. a. With a neat diagram, explain the concept of network-flow formulation. 6

   b. List the advantages and disadvantages of clock driven scheduling. 6

   c. Explain Rate Monotonic and Deadline Monotonic algorithms with examples for each. 8

UNIT - III

5. a. Define deferrable servers. Explain deferrable servers along the operations of deferrable servers. 10

   b. List the rules for defining stack based priority based protocol. Explain the stack based priority based protocol with example. 10

6. a. List the consumption and replenishment rules of simple fixed priority Sporadic server. 5

   b. Discuss with an example, the operations of a simple Sporadic server. 5

   c. Explain the basic priority ceiling protocol with an example. 10

UNIT - IV

7. a. Expand RISC and CISC. List the Principles of RISC and CISC. 10

   b. With a neat diagram. Explain the DMA controller for accessing the Main Memory. 10

8. a. List and explain the factors that enhance the performance of memory access methods. 10

   b. Explain the Flynn's Taxonomy for parallelism. 10

UNIT - V

9. a. List the five approaches of Pseudo kernels to achieve Multi tasking in RTOS. Explain any three approaches in detail.   10

  b. With a neat diagram. Explain the process state diagram.   10

10. a Define Critical Regions. Explain the semaphores and mail box approach to solve the Critical Region Problem.   10

  b. Define Deadlock. With a neat diagram explain the necessary conditions for deadlocks.   10

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