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MEVD - 202
M.E./M.Tech., II Semester
Examination, July 2015
Real Time Operating System
Time : Three Hours

Maximum Marks : 70

Note : i)   Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is binary semaphore? Explain how to use binary semaphores for signaling or notifying occurrences of an event from a task or thread and for signaling or notifying another task wait for that event.

   b) What are the issues to be considered in designing real time operating system.

2. a) Differentiate between the following:
   i)   Periodic and aperiodic tasks
   ii) Critical and non critical tasks
   iii) Reliability and availability

   b) Define the table for kernel services in an operating system with functions and actions.

3. Prove the theorem with figures: When preemption is allowed and jobs do not contend for resources, the EDF algorithm can produce a feasible schedule a set of jobs J with arbitrary release times and deadlines on a processor if and only if J has feasible schedules.

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4. a) Explain RM (Rate Monotonic) scheduling algorithm with an example and equation.

   b) Describe a bin packing assignment algorithm for EDF (Earliest Deadline First).

5. a) Describe the analysis of clock with necessary equations and figures.

   b) Explain the creation and activation of task by task spawn function in Vxworks.

6. a) Mention the RTOS system level functions in MUCOS and explain any two of them.

   b) For task priority function, define 3 options on spawning.

7. a) Give a brief overview of URTX?

   b) Explain the working of UNIX as real time operating system.

8. Write short note on:
   i)   Fully preemptible kernel
   ii) PSOS
   iii) Memory management
   iv) Inter process communication

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PTO