1E9107

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M.Tech. (Sem. I) (Main) Examination, February - 2010
Computer Science & Engineering
(1MCS3.2 Critical System Design)

Time : 3 Hours] [Total Marks : 100
[Min. Passing Marks :

*Attempt any **five** questions. Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever **necessary** to clearly illustrate your answer. Assume missing data suitably if any and specify the same.*

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205)

1. Nil 2. Nil

1 (a) Differentiate among fixed, jittered and sporadic release times.

(b) Is there any difference between precedence graph and task graph ? Explain with suitable examples.

2 (a) Differentiate between RM and DM algorithms with suitable examples.

(b) Explain basic priority inheritence protocol with a suitable example.

3 The first major cycle of the cyclic schedule of periodic tasks is given below. Schedule 3 aperiodic jobs whose release times are 5, 8 and 9.5 respectively. The execution times are 1.0, 1.5 and 3.0 respectively. Compute average response time if these aperiodic jobs are scheduled with or without slack stealing approach.

4 A system of 3 periodic tasks (7, 1, 11), (10, 2, 9) and (17, 2, 13) is seheduled and executed according to a cyclic schedule. Can you suggest minimum frame size for minimum preemption of the tasks ?

5 (a) What is the need of weighted fair queuing servers ? Explain with a suitable example.

(b) Differentiate between offline versus online scheduling strategies.

6 (a) Explain the basic stack based priority coiling protocol with a suitable example.

(b) Is there any difference between EDF and LST algorithms ? Explain.

7 (a) What is the concept of clock driven seheduling ? Explain with a suitable example.

(b) Explain PCP-2PL protocol with supporting application.

8 Write short notes on : (any **two**)

(a) Clock synchronization

(b) SPSL sporadic server

(c) Weighted round robin scheduling.