

8E5005

Roll No. : _____

Total Printed Pages : 3

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B. Tech. (Sem. VIII) (Main) Examination, April/May-2012
Computer Science
8CS4.2 Real Time Systems

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

Attempt any five questions.

Selecting one question form each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clerly.

Unit of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. _____ Nil 2. _____ Nil

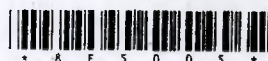
UNIT I

- 1 (a) What is real time system ? Explain with example. 8
(b) What are the different performance measurements of Real Time System ? 8

OR

- 1 Write briefly on following :
(a) Hard and Soft Real time system. 4
(b) Various time constraints of Job. 4
(c) Deadline and Execution time. 4
(d) Period and Release time. 4

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[Contd...

UNIT II

- 2 (a) Explain following briefly
- (i) Temporal Dependency
 - (ii) Pipeline dependency
 - (iii) Condition Branch Dependency
 - (iv) AND/OR dependency.
- 10
- (b) What is Real time scheduling ? Explain.
- 6

OR

- 2 (a) Explain following briefly :
- (i) Precedence constraints.
 - (ii) Precedence Graph
 - (iii) Task Graph
- 2
4
4
- (b) What are the classification of Real Time scheduling ?
- 6

UNIT III

- 3 (a) What is clock driven scheduling ?
- 2
- (b) What are the Advantages and Disadvantages of clock driven scheduling ?
- 4
- (c) What is Cyclic Execution ?
- 2
- (d) What is fixed and Dynamic Priority Scheduling ?
- 4
- (e) What are the practical factors of Priority Driven Scheduling ?
- 4

OR

- 3 (a) What is Table Driven Scheduling ?
- 2
- (b) What are advantages and disadvantages of cyclic executive.
- 4
- (c) What is Rate-Monotonic Algorithm and deadline - Monotonic Algorithms ?
- 4
- (d) Prove that System of 4 indendent Task $T_1 = (6,2)$, $T_2 = (10,4)$, $T_3 = (12,3)$, $T_4 = (15,4)$ is not schedulable where $T = (\text{Period, Execution Time})$.
- 6



UNIT IV

- 4 (a) What is Aperiodic Task Scheduling ? 4
- (b) What is Priority Exchange ? Explain briefly. 4
- (c) What is Background Approach for Aperiodic Task and its advantages and disadvantages ? 4
- (d) Write note on Imprecise Computations. 4
- OR**
- 4 (a) What is Aperiodic Task scheduling assumption and approaches ? 4
- (b) What is interrupt driven a periodic task scheduling approach and its advantages and disadvantages ? 6
- (c) What are the different types of scheduling for flexible applications ? Explain online and offline scheduling. 6

UNIT V

- 5 (a) Explain following Terms of Resources :
- (i) Mutual Exclusion 2
- (ii) Critical section 2
- (iii) Resource conflicts 2
- (iv) Blocking and Non blocking 2
- (b) What is priority Ceiling Protocol ? Explain Rules of priority ceiling protocol. 8
- OR**
- (a) Write properties of priority ceiling protocol. 4
- (b) Explain Blocking. 6
- (c) What is Stack-Based priority ceiling protocol and its characteristics ? 6



