

M. Tech. (Sem. II) (Main) Examination, September - 2010
Computer Science and Engineering
2MCS3 Distributed Algorithms

Time : 3 Hours]

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[Total Marks : 100
[Min. Passing Marks : 33

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. All questions carry **equal** marks.

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

1. Nil 2. Nil

1 (a) Is communication complexity same as sit complexity ? Differentiate between centralized algorithms and distributed algorithms.

(b) Give problems regarding networks in a distributed implementation. Also explain the Byzantine failure.

2 (a) Why is the HS algorithm better than the LCR algorithm ? Analyze the HS algorithm. rtuonline.com

(b) Why does one prefer noncomparison based algorithm in distributed environment ? Write a noncomparison based algorithm that can be used in such environment.

3 (a) Why do we need synch. GHS algorithm ? How do we reduce its communication complexity ?

(b) Explain the coordinated attack problem. Write an algorithm that can be classified as randomized algorithm for the above problem. rtuonline.com

4 (a) Why is the EIG tree important in distributed environment ? Explain EIS stop algorithm with its complexity.



5 (a) Does three-phase-commit algorithm guarantee strong termination condition ? Explain this algorithm.

(b) "The two-phase-commit algorithm solves the commit problem", Justify above statement and explain the algorithm as well. rtuonline.com

6 (a) Explain the Peterson - ZP algorithm. Can it be classified as a lockout free mutual exclusion algorithm ?

(b) Explain the tournament algorithm and comment whether it is lock-out free. rtuonline.com

7 (a) What is meant by a "Doorway" ? Does the Bakery algorithm guarantee lock out freedom ? Explain carefully.

(b) What do you understand by f-failure termination ? How can a shared memory model be transformed into a network model ?

8 (a) What is the need of failure detectors ? Explain the ticket ME algorithm with comments on the bounded by pass.

(b) Why is the Buffer-Main ME algorithm important. Justify your answer and explain the algorithm.

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