Roll No. _____

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2E9103

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M. Tech. II - Sem. (Main / Back) Exam., June-July 2016
Computer Engineering
2MCS3 Distributed Algorithms

Time: 3 Hours

Maximum Marks: 100
Min. Passing Marks: 33

Instructions to Candidates:

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 _____

Q. 1 (a) What are the issues is 4 – message conversation of one message transmission in distributed systems given by belsnes? [10]

(b) How can you say that the total number of messages sent out at phase ℓ is bounded by 8n? Justify it for HS algorithm. [10]

Q. 2 (a) Explain Luby's MIS algorithm and analyze its expected number of rounds until termination. [10]

(b) Write down the Random Attack algorithm. Explain its working. [10]

Q. 3 (a) Write down the correctness conditions for both models of process failure. [10]

(b) Justify that EIGstop algorithm solves agreement problem for stopping failure model. **rtuonline.com** [10]

Q. 4 (a) Explain three phase commit termination protocol [10]

(b) Analyze the communication complexity of two phase commit algorithm. [10]

Q. 5 (a) Write and explain Dijkstra ME algorithm in the precondition – effect style. [10]

(b) Justify that Peterson2P algorithm satisfies mutual algorithm. [10]

Q. 6 (a) Explain that Tournament algorithm is lock-out free. [10]

(b) Write the first algorithm for mutual exclusion using single – writer shared register. Does it guarantee the progress? **rtuonline.com** [10]

Q. 7 (a) Explain the control messages of Buffer – Main ME algorithm. [10]

(b) Explain Executive algorithm. How can you ensure lock out – freedom? [10]

Q. 8 (a) How can you transform Network model to shared memory model? Explain. [10]

(b) What is a failure detector? Explain Perfect FD Agreement algorithm. [10]