M.Tech Odd Semester (CBCS) Exam., December—2017

COMPUTER SCIENCE AND ENGINEERING

(1st Semester)

Course No. : MCSECC–02

(Advanced Operating System)

Full Marks : 50
Pass Marks : 15

Time : 2 hours

Note : 1. Attempt *any* **five** questions.
2. Begin each answer in a new page.
3. Answer parts of a question at a place.
4. Assume reasonable data wherever required.
5. The figures in the margin indicate full marks for the questions.

1. *(a)* Define distributed system. 2

(b) Explain in great detail the issues in distributed operating system. 8

2. *(a)* Write an explanatory note on SCHIPER–EGGLI–SANDOZ protocol. 6

(b) Give the proof of correctness on Huang's termination detection algorithm. 4

3. *(a)* Compare and contrast among Lamport's algorithm, Ricart–Agarwala's algorithm and Roucairol and Carvaloho's algorithm for distributed mutual exclusion in terms of number of messages required per CS execution. 7

(b) Differentiate between token-based and nontoken-based distributed mutual exclusion algorithms. 3

4. *(a)* Explain the impossibility result for Byzantine agreement protocol. 5

(b) Briefly explain the applications of Agreement protocol. 5

5. Give the algorithm on termination detection using SHORT, FLOOD and ECHO messages. 10

6. *(a)* Give the Chandy-Misra-Haas's edge chasing algorithm for distributed deadlock detection. 7

(b) Explain the impact of false deadlock detection in a distributed system. 3

7. Explain the design issues in distributed file system. 10

8. In respect of distributed shared memory, write short notes on *(a)* granularity and *(b)* page replacement. 5+5=10

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