



## AUTUMN END SEMESTER EXAMINATION-2017

7<sup>th</sup> Semester B.Tech

### DISTRIBUTED OPERATING SYSTEM

CS-4065

(Regular-2014 & Back of Previous Admitted Batches)

Time: 3 Hours

Full Marks: 60

*Answer any SIX questions including question No.1 which is compulsory.*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.*

1. Answer all the questions :- [2 × 10]
  - (a) Explain how the use of stubs helps in making an RPC mechanism transparent?
  - (b) What is path pushing? Give an example, how it is used to detect deadlock in distributed system.
  - (c) Why do some distributed applications use stateless servers in spite of fact state full servers provide an easier programming paradigm and are more efficient than stateless servers?
  - (d) What do you mean by false deadlocks in distributed environment? How this can be detected (give an example)?
  - (e) What is the effect of threshold value and pool limit in the performance of sender initiated load distributing algorithm?
  - (f) Define & differentiate between work station server model & processor pool model.
  - (g) Define & differentiate between structure & access transparency.

- (h) Give the difference between distributed operating system and network operating system.
  - (i) What is task migration in distributed shared memory architecture? Explain with example.
  - (j) Token based distributed mutual exclusion algorithms are less fault tolerant than permission based algorithms" → Yes or No Justify your answer.
2. (a) Explain with example Ricart-Agrawala Non-token based algorithm for mutual exclusion for distributed system. [4]
  - (b) How synchronization can be handled by lamport's logical clock in distributed environment? Explain, how it is different from vector clock with example. [4]
  3. (a) What are the different challenging issues to be discussed in the design of distributed operating system? Explain each in brief. [4]
  - (b) Explain how deadlock detection can be handled by edge-chasing computation based algorithm over distributed systems. [4]
  4. (a) Explain symmetrically initiated algorithm for distributed scheduling. What are the limitations of it? [4]
  - (b) What is voting protocol? Explain Two-phase commit protocol to provide fault tolerance in distributed system. [4]
  5. (a) Explain different actions taken by server or clients to access data in distributed file system. [4]
  - (b) Differentiate between backward and forward recovery process in brief. [4]

6. (a) Explain the operational steps migration, read replication and full replication algorithm for distributed shared memory. [4]
- (b) Explain ring based coordinator selection algorithm for distributed systems. [4]
7. (a) Explain, how byzantine agreement cannot always be reached among four processors if two processors are faulty using Lamport-Shostak-Pease algorithm. [4]
- (b) Explain RPC model for both sender and receiver site over a distributed environment. [4]
8. Write short notes on (any two). [4 × 2]
- (a) Marshaling in RPC
- (b) Maekawa Token based mutual exclusion algorithm.
- (c) Different components of DCE

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