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**Distributed Operating System**

P. Pages : 2

Time : Three Hours

**NRJ/KW/17/4746**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Assume suitable data whenever necessary.
  9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain vector clocks with the help of example. **6**
- b) Differentiate between micro kernel and monolithic kernel approaches for designing a distributed operating system. Discuss their relative advantages and disadvantages. **7**

**OR**

2. a) Discuss in detail various issues in design of distributed operating system. **7**
- b) What are inherent limitations of a distributed system? Explain. **6**
3. a) State and justify how Ricart-Agrawala's algorithm achieves mutual exclusion. **7**
- b) Discuss in detail Raymond's Tree Based algorithm with the help of example. **7**

**OR**

4. a) Give comparative performance analysis of all token-based and non-token based algorithm. **7**
- b) What are the requirements of mutual exclusion algorithms? Explain. **7**
5. a) Explain Chandy-Mishra-Haas's Edge chasing algorithm for distributed deadlock detection with the help of example. **8**
- b) Explain deadlock handling strategies in distributed system. **5**

**OR**

6. a) Compare one-phase and two-phase Ho-Ramamoorthy algorithm for deadlock detection. **8**
- b) Describe AND and OR request models for Distributed Deadlocks, give name of algorithms based on above request models. **5**
7. a) Explain with the help of diagram Distributed file system architecture. **7**

b) Explain following terms related to file system of distributed system:

6

- i) Mounting
- ii) Caching
- iii) Hints

**OR**

8. a) List and explain various algorithms for implementing distributed shared memory. 8

b) Compare write-invalidate and write-update protocol. 5

9. a) What are the different issues in Load distributing. 8

b) Discuss mechanism to select a suitable load sharing algorithm. 5

**OR**

10. a) Explain Receiver-Initiated load distributed algorithm with the help of flowchart. 8

b) Describe major components of load distribution algorithms. 5

11. a) Explain the following with help of example: 8

i) Orphan messages and domino effect.

ii) Lost messages.

iii) Problem of live lock

b) Explain 2-phase commit protocol. 6

**OR**

12. a) Explain phases of checkpoint algorithm with the help of diagram. 7

b) Distinguish between static and dynamic voting protocol. 7

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~ Babe Ruth

