

M.Tech. Computer Science & Engineering CBCS Pattern Semester-I  
**PCSS12 - Advanced in Operating System Design**

P. Pages : 1

Time : Three Hours



**GUG/W/23/10941**

Max. Marks : 70

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- Notes :
1. Solve **any five** questions.
  2. All questions carry equal marks.
  3. Due credit will be given to neatness and adequate dimensions.
  4. Assume suitable data wherever necessary.
  5. Illustrate your answers wherever necessary with the help of neat sketches.

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|----|----|--|----|
| 1. | a) | Explain in detail, the various issues in Distributed operating system.   | 7  |
|    | b) | Differentiate between the monolithic kernel structure and the collective kernel structure.                                     | 7  |
| 2. | a) | Explain in detail Lamport's logical clocks and state its limitations.  | 10 |
|    | b) | What are cuts of a distributed computation?  | 4  |
| 3. | a) | Explain in brief why mutual exclusion is necessary?  | 4  |
|    | b) | Show that in the Ricart- Agrawala algorithm, the critical section is accessed according to the increasing order of timestamps. | 10 |
| 4. | a) | Discuss "Failure Resilient processes" With schemes to implement them.  | 7  |
|    | b) | Explain how voting protocols work for fault tolerant systems.  | 7  |
| 5. | a) | Which are different deadlock handling strategies in distributed systems.   | 6  |
|    | b) | Describe an Edge- chasing Algorithm for deadlock detection in distributed systems.   | 8  |
| 6. | a) | What are the design issues to be considered while designing a Real- time operating system?                                     | 7  |
|    | b) | Explain the architecture of wireless networks as a distributed system.   | 7  |
| 7. | a) | Explain the following terms related to distributed file system.<br>- Mounting.<br>- Mount point.<br>- Mount table.             | 6  |
|    | b) | Write a short note on: Coda file system.   | 8  |
| 8. | a) | Explain backward & forward error recovery in distributed system.   | 7  |
|    | b) | What is asynchronous check pointing in distributed system?   | 7  |

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