M. Tech. Computer Science & Engineering (CBCS Pattern) Semester-I

PCSS12 - Advanced in Operating System Design

P. Pages : 1 **GUG/W/24/10941**

Time : Three Hours * 4 1 0 1 * Max. Marks : 70

Notes : 1. Solve **any five** questions.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Write a short note on Birman-Schiper-Stephenson Protocol. **5**

b) Compare and contrast the following **9**

i) Traditional Time Sharing System Vs Distributed system.

ii) Synchronous Vs Asynchronous Primitives.

iii) Blocking Vs Non Blocking primitives.

2. a) What are the requirements that mutual exclusion algorithm should satisfy? Also discuss how to measure performance of mutual exclusion algorithms? **7**

b) Discuss in detail the Ricart-Agrawala Non-Token based Distributed mutual exclusion algorithm. **7**

3. a) What are different design issues in RPC? Explain with diagrams. **7**

b) Explain Singhal's Heuristic algorithm in detail. Also write what data structure used for same. **7**

4. a) What are different network naming mechanism for distributed system. **7**

b) Explain in brief Hierarchical dead lock detection Algorithm. **7**

5. a) Describe an Edge-chasing Algorithm for deadlock detection in Distributed systems. **8**

b) Which are different deadlock handling strategies in distributed systems. **6**

6. a) Explai Ho-Ramamoorthy Algorithm for deadlock detection. **8**

b) Define live locks? What is the differences between a deadlock and a live locks. **6**

7. a) Write in brief about the Mach operating system. **7**

b) Explain the voting algorithms for controlling access to replicated data. **7**

8. a) Explain the central server and migration algorithm for implementation of distributed shared memory. **5**

b) What are threads? How do they differ from a process? How do threads speeds up the execution of application. **5**

c) Explain the design issues in real time operating systems. **4**

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