

(Library)

B.E. (Computer) Sem-VIII Rev

9/6/07

Distributed Computing.

Con. 3300-07.

ND-1816

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

N.B.(1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions out of remaining questions.

(3) Assumptions made should be **clearly** stated.

(4) **Figures** to the **right** indicate **full** marks.

(5) **All** questions carry **equal** marks.

1. (a) What are the goals of a distributed system ? 6
(b) Compare multi computer system with multiprocessor systems. 6
(c) What are various services provided to network operating system by middleware for designing a distributed system ? 8
2. (a) What does one understand by an object reference ? How is object reference passed as parameter in RMI.
(b) What are various forms of message-oriented communication ? Applications such as E-mail, Chat, Newsgroup, Web-meeting, SMS use which communication model.
(c) Compare processes and threads. Explain user and Kernel level threads execution and also the need of light weight threads.
3. (a) Explain the problem of distributed commit. Explain Two-phase commit protocol in detail. 6
(b) "Vector Timestamp mechanism for synchronization is used for capturing causality of events." Justify the statement by using an example of distributed application which requires such synchronization. 8
(c) What issues of parameter passing need to be considered while designing marshalling/un-marshalling mechanism in RPC/RMI ? 6
4. (a) What is CORBA ? Explain its architecture and various services provided by it. 10
(b) Explain the need of Client Centric consistency models as compared Data Centric consistency models. Explain any 2 client centric models with the along applications which require to use them. 10
5. (a) Explain distributed algorithm for Mutual Exclusion. What are the advantages and disadvantages of it over centralized algorithm. 6
(b) Explain the epidemic protocols for update propagation in eventual consistent data store. 6
(c) Explain CODA File System. 8
6. (a) Explain failure semantics in RMI. 5
(b) Explain why weighted reference counting algorithm is more efficient than simple reference counting. 5
(c) What are message brokers ? 5
(d) What are the security issues in mobile code. 5

7. Write any **four** short notes :—

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- (a) Garbage Collection in distributed system.
- (b) Peer to Peer Model as compare to Client-Server Model
- (c) Mobile Agents for Code migration
- (d) Name resolution in DNS
- (e) Distributed Vs. Nested Transactions.