Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name: Distributed System and Application

Subject Code: 5TE01DSA1 **Branch:M.Tech (CE)**

Semester: 1 **Date: 23/12/2015** **Time: 10:30 To 01: 30** **Marks: 70**

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1 **Attempt the Following questions** **07**

a. What is Distributed System?
b. What do you mean by scalable system?
c. How does piggybacking reduce network traffic and improve distributed system performance?
d. Define transparency.
e. Can two computers on the internet have the same IP address? Justify.
f. Explain 1-reliable semantics used in reliability mechanism.
g. What is atomic broadcast?

Q-2 **Attempt all questions**

a. Discuss desirable features of a good message-passing system. **05**
b. List the different types of transparency. Explain Replication transparency. **05**
c. Discuss differences between the work station-server and the processor-pool model in terms of availability. **04**

OR

Q-2 **Attempt all questions**

a. Discuss VMTP protocol. **05**
b. What is ordered message delivery? Compare various ordering semantics for message-passing. **05**
c. Compare pros and cons of microkernel and monolithic kernel approach. **04**

Q-3 **Attempt all questions**

a. Discuss briefly the taxonomy of load-balancing algorithm. **07**
b. Explain orphan call. How are orphan calls handled in the implementation of various call semantics? **07**

OR

Q-3 **Attempt all questions**

a. Discuss, how can exactly-once, at least-once and last-one IPC semantics be implemented. **07**

b. What is the role of stub in RPC execution? How do stubs make RPC execution transparent? **07**

SECTION – II

Q-4 **Attempt the Following questions** **07**

a. What is process migration?

b. What is the need for state information exchange among nodes?

c. What is the main difference between stateless and stateful servers?

d. Explain 'happened before relation'.

e. What is deadlock?

f. What is clock skew?

g. What is the main difference between mutable and immutable file models?

Q-5 **Attempt all questions**

a. What are the main steps involved in process migration? What is the need for freezing the process on the source node? **05**

b. Discuss various location policies used for load sharing. **05**

c. With suitable example explain the graph theoretic deterministic algorithm. **04**

OR

Q-5 **Attempt all questions**

a. What is callback RPC? How does a server handle callback to the client? **05**

b. Explain Distributed Shared Memory (DSM) System Architecture. Enumerate the various advantages of the DSM systems. **05**

c. Explain distributed dead lock recovery. **04**

Q-6 **Attempt all questions**

a. Explain different Election algorithms. **07**

b. Explain Process Management in Amoeba. **07**

OR

Q-6 **Attempt all Questions**

a. Highlight the desirable features of a good Distributed File System (DFS). **06**

b. Explain Mach microkernel model and memory management. **08**