

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII EXAMINATION – WINTER 2015

Subject Code:180701

Date:09/12 /2015

Subject Name: Distributed Systems

Time: 2:30pm to 5:00pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** What are the fundamental issues in resource management in distributed system? **07**
(b) Why is scalability an important feature in the design of a distributed system? **07**
Discuss some of the guiding principles for designing a scalable distributed system.
- Q.2 (a)** What are the different types of failures and how are they dealt in distributed system? **07**
(b) What is datagram? Explain the mechanism of handling multiple datagrams in IPC. **07**
- OR**
- (b)** Network system protocols are unsuitable for distributed systems. Explain. **07**
- Q.3 (a)** Enumerate the various issues in clock synchronization. Classify the clock synchronization algorithms and explain Berkeley algorithm with an example. **07**
(b) What is remote method invocation? What are the commonalities and differences between RPC and RMI? **07**
- OR**
- Q.3 (a)** Compare message passing and distributed shared memory approaches. **07**
(b) Define thrashing in DSM. Also explain methods for solving thrashing problem in DSM **07**
- Q.4 (a)** What is process migration? List the steps for it. What is the advantage of process migration? **07**
(b) What are threads? Enumerate the major differences between threads and processes. Discuss thread synchronization. **07**
- OR**
- Q.4 (a)** What is object location? How is it carried out in a distributed system? Discuss various object-locating mechanisms. **07**
(b) Explain an algorithm using multicast and logical clocks for mutual exclusion. **07**
- Q.5 (a)** How does DFS differ from a file system used for a centralized time-sharing system? **07**
(b) Explain the DNS name service and bind implementation of DNS. **07**
- OR**
- Q.5 (a)** Explain the DSM system architecture. How does granularity affect DSM system performance? **07**
(b) Explain the common approaches to user authentication. What problems are associated with these approaches? **07**
