

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (old) - EXAMINATION – SUMMER 2018

Subject Code:180701

Date:02/05/2018

Subject Name:Distributed Systems

Time:10:30 AM to 01:00 PM

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) 1. What is a distributed system? How a distributed system does projects a single system image? **03**
2. Briefly discuss the issues related to distributed system design. **04**
(b) 1. State the relative merits and demerits of the various process addressing mechanism. **03**
2. Discuss the desirable features of a good message passing system. **04**
- Q.2** (a) Compare and contrast RPC and RMI. **07**
(b) What is ordered message delivery? Compare the various ordering semantics for message-passing. Explain how each of these semantics is implemented. **07**
- OR**
- (b) What is RMI? What are the main features of Java RMI? Discuss the various components and the process of RMI execution. **07**
- Q.3** (a) 1. What is clock skew? State the types of clock synchronization required to synchronize with real time clock. **03**
2. Discuss various issues in clock synchronization. **04**
(b) Why mutual exclusion is more complex in distributed systems? Categorize and compare mutual exclusion algorithms. **07**
- OR**
- Q.3** (a) 1. What is a deadlock? List the four necessary and sufficient conditions for a deadlock to occur. **03**
2. Discuss various deadlock prevention strategies. **04**
(b) What is a logical clock? Explain how logical clocks are implemented in a distributed system. **07**
- Q.4** (a) 1. What is process migration? What are the steps involved in it? **03**
2. What is a deadlock? List the four necessary and sufficient conditions for a deadlock to occur. **04**
(b) Explain how freezing of the migrating process is carried out. **07**
Discuss the issues in designing load-sharing algorithms.
- OR**
- Q.4** (a) 1. What are threads? Differentiate between threads and processes. **03**
2. Discuss thread synchronization. **04**
(b) Discuss the issues in designing load-balancing algorithms. **07**
- Q.5** (a) What is consistency? Discuss the various consistency models used in DSM system. **07**
(b) How the process is specified using formal model? Define the process execution and admissibility using formal model. **07**
- OR**
- Q.5** (a) How object locating is carried out in Distributed System? Discuss different object-locating mechanisms. **07**
(b) How the problem is specified using formal model? Discuss the formal models for message passing system. **07**
