

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII • EXAMINATION – SUMMER • 2015

**Subject code: 180701**

**Date: 15/05/2015**

**Subject Name: Distributed Systems**

**Time: 10.30AM-01.00PM**

**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 is a Distributed System? State any Three advantages and disadvantages of distributed systems with respect to centralized systems. **07**
- (b) Write and explain the algorithm of constructing a DFS spanning tree with specified root **07**

- Q.2** (a) How does VMTP protocol handle lost messages, flow control, group communication and maintain transparency **07**
- (b) What is atomic broadcast? Explain Group Communication Mechanism **07**

**OR**

- (b) Explain Static and Dynamic RPCs **07**

- Q.3** (a) A distributed system has four nodes, N1, N2, N3 and N4, each having its own clock. Their clocks tick at 500, 550, 580, and 610 times per millisecond, respectively. This distributed system uses an external clock synchronization mechanism in which all four nodes receive the real time every 60 seconds from an external time source to read just their clock. Calculate the maximum clock skew which can occur in the system. **07**
- (b) Discuss various dead lock detection algorithms in distributed systems **07**

**OR**

- Q.3** (a) Why mutual exclusion is more complex in distributed systems? Categorize and compare mutual exclusion algorithms **07**
- (b) Discuss and compare various election algorithms **07**

- Q.4** (a) What is process migration? Explain address transport mechanism with freezing technique **07**
- (b) Explain the issues in designing load sharing algorithms **07**

**OR**

- Q.4** (a) Explain the technique to avoid the faults in distributed systems **07**
- Q.4** (b) Write the advantages of distributed shared memory. Define HDSM and explain Ring based multi processor **07**

- Q.5** (a) Explain all strong Consistency Models **07**

- (b) What is Thrashing? Explain all algorithms use for data location and DSM consistency management **07**

**OR**

- Q.5** (a) Explain distributed approach to generate system oriented names **07**  
(b) Explain the case study of DNS **07**

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