

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014

Subject Code: 171602**Date: 29-05-2014****Subject Name: Distributed Database Application and System****Time: 02:30 pm - 05:00 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) Explain the potential problems with DDBMS. **07**
 (b) Explain Top Down Design Process for Distributed Database Design. **07**
- Q.2** (a) Explain following in context of Relational algebra : **07**
 1. Selection 2. Natural Join 3. Intersection
 (b) What are the objectives of Query processing? **07**
- OR**
- (b) Explain layers of Query processing. **07**
- Q.3** (a) Consider following relations **07**
 employee (person-name, street, city)
 works(person-name, company-name, salary)
 company(company-name, city)
 manages(person-name, manager-name)
 Write following query in relational algebra form.
 (1) Find names of all employees who work for HDFC.
 (2) Find the names of all employees who live in the same city as the company for which they work.
 (3) Find names and cities of residence of all employees who do not work for HDFC and earn more than Rs 10 lac per year.
 (b) What is fragmentation? Why it is needed? What are the correctness rules for fragmentation? **07**
- OR**
- Q.3** (a) What do you mean by distributed semantic integrity control? Explain with example. **07**
 (b) Describe BEA algorithm used in vertical fragmentation. **07**
- Q.4** (a) What is Query Optimization? List the components of Query Optimizer software and explain any one. **07**
 (b) Explain the first phase of Query processing that transforms a relational calculus query into a relational algebra query. **07**
- OR**
- Q.4** (a) What is allocation? List and explain the information requirements during allocation. **07**
 (b) Explain Distributed cost model with suitable example and determine total time as well as response time. **07**
- Q.5** (a) List various Transaction Models. Explain any two in detail. **07**
 (b) Discuss fundamental issues in distributed database design. Give at least 3 differences between replicated and Partitioned database. **07**
- OR**
- Q.5** (a) Write short note on: MDBS architecture. **07**
 (b) Write short note on: Two Phase Commit Protocol for Distributed Transactions **07**
