Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–IV • EXAMINATION – WINTER • 2014

Subject Code: 740201 **Date: 26-11-2014**

Subject Name: Advance Databases

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)** Discuss Autonomy, Distribution, and Heterogeneity for Distributed Databases. **07**

(b) Explain the Need of Normalization. Discuss BCNF with Example. **07**

Q.2 **(a)** A database has the following Transactions. Let minimum support 50%, and minimum confidence 50%, **07**

Transaction ID	Items Bought
2000	A,B,C
1000	A,C
4000	A,D
5000	B,E,F

Find all frequent item-sets using Apriori algorithm and also find the Association Rules.

(b) How does a B-tree differ from B+-tree? Why a B +-tree is usually preferred as an access structure to a data file? **07**

OR

(b) List the search algorithm that can be used to implement a SELECT operation. Mention the conditions under which these algorithms can be used. **07**

Q.3 **(a)** Define Query Optimization and explain its significance for a DBMS. Also discuss the reasons for converting SQL queries into relational algebra queries before optimization is done. **07**

(b) What do you mean by persistence in Object oriented database? How many ways to make object persistence? Explain with example. **07**

OR

Q.3 **(a)** Explain Nesting and Un-Nesting of relations with example. **07**

(b) Explain inheritance, type inheritance and table inheritance with example. **07**

Q.4 **(a)** Explain Digital signature and Authentication **07**

(b) What is Active and Deductive Databases? **07**

OR

Q.4 **(a)** What are the characteristics that must be considered in the design of a Mobile database System? **07**

(b) What do you means by Concurrency in terms of database? Explain different problems of concurrency with example. **07**

Q.5 **(a)** What do you mean by Locking? Explain different kinds of Locks, their compatibility and working. **07**

(b) Explain ID3 or CART algorithm to construct a decision tree with Example **07**

OR

Q.5 **(a)** Describe the steps of building a Data warehouse **07**

(b) Explain various Parallel Database Architectures and scale up in detail. **07**

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