Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –IV Examination Dec. - 2011

Subject code: 740201 **Date: 07/12/2011**
Subject Name: Advanced Databases
Time: 10.30 am – 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)** Explain various stages of Query Processing in detail with appropriate example. **07**

(b) Give the answers of following:

1. Let the relation Employee and Department have following properties. Employee has 20000 tuples and Department has 45000 tuples. 25 tuples of Employee and 30 tuples of Department fit in a block respectively. Estimate number of block transfer required using each of following join operation: **04**
   i) Nested loop join
   ii) Block nested loop join
2. Explain Equivalence rule and give the equivalence rules for theta-join with example. **03**

Q.2 **(a)** What do you means by Concurrency in terms of database? Explain different problems of concurrency with example. **07**

(b) Explain the two-phase commit protocol and discuss the implications of a failure on the part of (a) the coordinator and (b) some participant during each of the two phases. **07**

OR

(b) Give the answer of following.

1. Explain Recovery log and Message handling. **04**
2. Explain Serializability in detail. **03**

Q.3 **(a)** What do you mean by persistence in Object oriented database? How many ways to make object persistence? Explain with example. **07**

(b) A database has following transactions. Let min_sup = 40% and min_conf = 80%. **07**

TID	Items
T1	I1, I2, I5
T2	I2, I5
T3	I1, I2, I3
T4	I2, I4
T5	I3, I4, I5
T6	I4, I5

Find all frequent itemsets using Apriori algorithm & also find association rules.

OR

Q.3 **(a)** What is data mining? Which are the major data mining functionalities? Explain in detail. **07**

(b) A database has following transactions. Let min_sup = 40% and min_conf = 80%. **07**

TID	Items
T1	I1, I2, I5
T2	I2, I5
T3	I1, I2, I3
T4	I2, I4
T5	I3, I4, I5
T6	I4, I5

Find all frequent itemsets using FP-growth algorithm.

Q.4 **(a)** Explain various Parallel Database Architectures and scale up in detail. **07**

(b) Explain Naïve Bayesian classification with suitable example. **07**

OR

Q.4 **(a)** How many ways to store XML data in database? What are the advantages and disadvantages of each approach? **07**

(b) Explain Transaction Server Process structure of client server model. **07**

Q.5 **(a)** In the context of distributed database, explain advantages and disadvantages of backup coordinator site. Also explain different algorithms to select new coordinator site. **07**

(b) What do you mean by Database tuning? Explain tuning of indexes for relational database with example. **07**

OR

Q.5 **(a)** Explain design and implementation issues for active databases in detail. **07**

(b) Give the differences between Discretionary access control and Mandatory access control. And discuss Role- Based access control. **07**

****