Roll No. | | | | | | | | |

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APR / MAY 2013

COMPUTER SCIENCE & ENGINEERING

V Semester

CS9024 Advanced Database Technology

(Regulation 2008)

Time : 3 Hours Answer ALL Questions Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. What do you mean by functional dependency?
2. Differentiate immediate update from deferred update recovery.
3. How range partitioning differs from hash partitioning in parallel databases?
4. What is mixed data fragmentation?
5. Define Object Persistence.
6. List out the primary characteristics an OID should possess?
7. Define the term 'Bitemporal Databases'.
8. How do you evaluate support and confidence values for association rule mining?
9. Give some examples for Multimedia Query languages.
10. List out the various types of Spatial Queries.

Part – B (5x16=80 marks)

11. a) i) Develop Conceptual and Logical Modeling for the following Movie Rental Store system:

The movies are rented out in stores and there are several stores. Each store has a unique distributor that supplies the store with tapes. A distributor may supply more than one store. Each distributor has a name, an address, and a phone number. Each store has a name, an address, and a phone number. For each employee we must keep the following information: working store, a name, a supervisor, an address, a phone number, SIN (social insurance number) and the date when the employee was hired. For each customer we have to keep the following information: a name, an address, and a phone number (if any). For each rental, we must keep track of which employee served the customer, which movie, customer details and information about payment, date and the time of the rental, the status(rented, returned_in_time, returned_late), the rate (i.e. the price), and if applicable, due date and overdue charges. About the payment we have to keep which of the employees accepted the payment and nature of the payment. (8)

ii) Discuss about the transformation rules used by the query optimizer in conversion of a relational algebra expression into its equivalent with an example for each. (8)

12. a) i) How do you compute queries using Intra Query Parallelism? Explain Sort and Join operations with suitable examples. (10)

ii) How deadlocks occur in a distributed environment? Explain with an example. (6)

(OR)

b) i) Explain Two Phase and Three Phase commit protocols of Distributed databases in detail. (12)

ii) Write short notes on Distributed Locking. (4)

13. a) i) Derive a possible ODL schema for the airline reservation database (State your own assumptions). (8)

ii) Discuss some of the object relational features available in SQL. Give an example with syntax for each. (8)

(OR)

b) i) Explain the process of mapping an EER schema to an ODB schema in detail with suitable examples. (12)

ii) Compare OODBMS with ORDBMS. (4)

14. a) i) Explain the architecture of a datawarehouse in detail. (8)

ii) What is Clustering? Briefly describe Hierarchical and Partitioning Clustering methods. (8)

(OR)

b) i) Sketch the Client Server Model in detail and explain its characteristics. (8)

ii) How Query processing takes place in Mobile Databases? Explain. (8)

15. a) Explain about Point Tree, Quad Tree and k-D Tree data structures in detail with an example for each. (16)

(OR)

b) i) How Knowledge could be acquired using a Deductive DB? Explain. (8)

ii) Consider an employee database with assumptions on your own. Write Active rules to do the following:

a. Whenever an employee's project assignment has been changed, change the records of that employee to the corresponding department. (4)

b. Whenever an employee is deleted, delete the PROJECT tuples and DEPENDENT tuples related to that employee. (4)

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