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Question Paper Code : 71190

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

Second Semester

Computer Science and Engineering

CS 9221/CS 921 — DATA BASE TECHNOLOGY

(Common to M.E. Computer and Communication)

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. When is it useful to have replication of data?
2. State the role played by global query optimizer in distributed query processing.
3. What is object definition language?
4. Define state of an object.
5. What is a data warehouse?
6. What is association rule mining? Give an example for an association rule.
7. State the need for database tuning.
8. What is a nearest neighborhood query? Give example.
9. With an example explain a deductive axiom.
10. State the advantages of parallel databases.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is the difference between a homogeneous and heterogeneous DDBMS? Under what circumstances would such systems generally arise? Discuss. (6)
- (ii) With an example discuss distributed query processing. (10)

Or

- (b) (i) What is a distributed transaction? Discuss transaction management in distributed database systems with an example. (8)
- (ii) Discuss how concurrency control mechanisms are enforced in distributed database management systems. (8)
12. (a) Design an object oriented database for a library management system. State the business logic you are taking into consideration. (16)

Or

- (b) List and discuss the necessary characteristics a system must satisfy to be considered as an object oriented database management system (OODBMS). (16)
13. (a) Highlight the features of the following databases :
- (i) Web Databases. (8)
- (ii) Mobile Databases. (8)

Or

- (b) What is data mining? With examples discuss any two techniques used in data mining. (16)
14. (a) (i) A Company is organized into departments Each department has employees working in it. The attributes of department include department number and department name. The attributes of employee include employee number, employee name, date of birth, gender, date of joining, designation, basic, pan and skill (multi valued). Each department has a manager managing it. There are also supervisors in each department who supervise a set of employees. Each department controls a number of projects. The attributes of project include project code and project name. A project is controlled only by one department. An employee can work in any

number of distinct projects on a day. The date an employee worked, in time and out time has to be kept track. The company also keeps track of the details of dependents of each employee. The attributes of dependent include dependent name, date of birth, gender and relationship with the employee. Develop an ER model for the above scenario. (8)

(ii) Transform the ER model you have modeled to relations. (8)

Or

(b) With an example discuss the issues related to design of a temporal database. (16)

15. (a) (i) What are the differences between row-level and statement-level active rules? Give examples. (8)

(ii) What are the differences among immediate, deferred, and detached consideration of active rule conditions? Give examples. (8)

Or

(b) Discuss the following databases :

(i) Text Databases. (8)

(ii) Image Databases. (8)