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322758(22)

B. E. (Seventh Semester) Examination, April-May 2020

(Old Scheme)

(CSE, IT Engg. Branch)

OODBMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note** : Question no.-1 of each unit is compulsory. And attempt any two question from remain part.*

Unit-I

1. (a) What does user defined abstract data type mean? 2

(b) Explain specialization/generalization along with their constraints. 7

(c) Explain how Ternary Degree Relationship can be converted to binary degree relationship. Draw the ER-diagram for car insurance company with binary and ternary degree relationship. 3+4

(d) Explain why ambiguity potentially exists with multiple inheritance. Illustrate your explanation with an example. 7

Unit-II

2. (a) How does the concept of an object in object oriented model differ from the concept of an entity in ER Model. 2

(b) A car-rental company maintains a vehicle data-base for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, data of purchase, color special data are included for certain types of vehicle 7

(i) Trucks : Cargo Capacity

(ii) Sports cars : horsepower, renter age requirement.

(iii) Vans : number of passengers

(iv) Off-road vehicles, ground clearance drive train (four or two-wheel drive).

Construct an object-oriented database schema defination for this database.

(c) What does persistent programming language mean? What are the different approaches to make object persistence? 2+5

(d) Explain the term object identity? Explain the distinction between edges in a DAG representing inheritance and a DAG representing object containment. 4+3

Unit-III

3. (a) What is query processing & optimization mean? 2

(b) Compare in tubular for RDBMS, ODBMS and ORDBMS. 7

(c) Consider the database schema 3+2+2

Emp = (ename, setof(children), setof(skills)

Children = (name, birthday)

Birthday = (day, month, year)

Skills = (type, setof (Exams))

Exams = (year, city)

Assume that attributes of type setof (children), setof (skills) and setof (exams), have attribute names childrenset, skillset and Examsset, respectively. Suppose that the database contains a relation emp(Emp). Write the queries in SQL3.

(i) Find the names of all employees who have a child who has a birthday in March.

(ii) List all skills types in the relation emp.

(iii) Find those employees who took an examination for the skill type "typing" in the city "Dayton".

(d) Explain nested relation in ORDBMS. 7

Unit-IV

4. (a) Name different join algorithm along with their complexity in terms of number of block access. 2

(b) Explain client-server system? Consider an object oriented system based on a client server architectures, with the server acting as a data server. 3+4

(i) What is the effect of the speed of the interconnection between the client & the server on the choice between object & page shipping?

(ii) If the page shipping is used, the cache of data at the client can be organised either as an object or page cache. Assume object are smaller than a page. Describe one benefit of an object cache over a page cache.

(c) Discuss the relatives advantages of centralized and distributed database. Consider a distributed system with two sites A and B. Can site A distinguish among the following? 4+3

- B goes down
- The link between A & B goes down.
- B is extremely overloaded and response time is 100 times longer than normal.

What implications does your answer have for recovery in distributed system.

(d) What are different partitioning techniques in parallel database environment? For each of the partitioning techniques give an example of a query for which

that partitioning technique would provide the fastest response. 4+3

Unit-V

5. (a) Give the DTD for an XML representation of the following nested-relational schema 2

Emp = (ename, childrenset setof(children),
Skillset setof (skills))
Children (name, Birthday)
Birthday = (day, month, year)
Skills = (type, Examset setof(exams))
Exams = (year, city)

(b) Explain with example the structure of XML Data. 7

(c) Explain different way of storing XML Data. 7

(d) Differentiate between active, temperal, spatial and mobile databases. 7