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CONTINUOUS ASSESSMENT TEST III

(Common to CSE / IT)

Course Name: Data Base Management Systems **Duration: 3 Hours**

Course Code: CS8492 **Date: 23.06.2021**

Branch: CSE /IT **Max. Marks: 100**

Year / Sem: II / IV

PART-A (10*2=20)

Answer all questions

1.Why can't a hierarchical model represent a many-to-many (M:N) relationships among records? (K2) [CO4]

2. Consider the given table &Write a query to find all the employees whose salary is between 50000 to 100000. (K3) [CO5]

EmpID	EmpPosition	DateOfJoining	Salary
1001	Manager	01/07/1990	500000
1002	Executive	02/03/1992	75000
1003	Manager	01/05/1994	90000
1002	Lead	02/03/1992	85000
1001	Executive	01/07/1990	300000

3. 'Boyce-Codd normal form is found to be stricter than third normal form'. Justify the statement. (K3) [CO6]

4. Analyse trivial dependency (K4) [CO4]

5. Assess the type of locking needed for insert and delete operations. (K4) [CO6]

6. Differentiate strict two-phase locking protocol and rigorous two-phase locking protocol.(K2) [CO4]

7. Formulate the factors to be considered for the evaluation of indexing and hashing techniques. (K3) [CO5]

8. Prepare the need for Query Optimization. (K3) [CO5]

9. Determine the fragmentation in Distributed Database (K5) [CO4]

10. Validate on how the concept of an object in the object oriented model differ from the concept of an entity in the entity relationship model? (K5) [CO6]

PART-B

Answer all questions (5*13 = 65)

11.(a) Consider the following relation schema (K3)

Works(Pname,Cname,salary)

Lives(Pname,Street,City)

located_in (Cname, city)

Manager(Pname,Mgrname)

Write the SQL queries for the following

i) Find the names of all persons who live in the city Chennai. [2M]

ii) Retrieve the names of all person of "TCS" whose salary is upto Rs 30000 [2M]

iii) Find the names of all persons who lives and work in the same city [2M]

iv) List the names of the people who work for “Hexaware” along with the cities they live in. [2M]

v) Find the average salary of “CTS” persons. [2M]

vi) Create a sub query to establish the WHERE, ANY, and ALL sub queries with example. [3M] [CO5]

(or)

(b) (i) Assess about SQL fundamentals. (K3) [6M]

(ii) Develop the overall architecture of the data base system in detail.(K4)[7M] [CO5]

12. (a) Draw the ER diagram for a departmental shop. Take the entities to define different activities (K3) [CO6]

(eg., Sales etc), employees (different types eg., Manager), section (eg., kids section), customers and other departments of the shop. Also take appropriate attributes to define the entities. Convert the ER diagram to tables

(or)

(b) i) Justify and Compare 3NF and BCNF with example. (K5) [6M]

ii) The relation schema Student_Performance (name, courseNo, rollNo, grade) has the following FDs:

name,courseNo->grade

rollNo,courseNo->grade

name->rollNo

rollNo->name

What is the highest normal form of this relation scheme? (K2) [7M] [CO6]

13.(a) Explain ACID properties and illustrate them through examples? (K3)[12M] [CO4]

(or)

(b) What is Concurrency? Explain it in terms of locking mechanism and two-phase Commit Protocol. (K2) [13M] [CO4]

14.(a) (i)Analyze about the B+ Tree file organization in detail. (K5) [4M]

(ii) Identify a B+ tree to insert the following key elements (order of the tree is 3)

5, 3, 4, 9, 7, 15, 14, 21, 22, 23. (K4) [9M] [CO4]

(or)

(b) Determine about static and dynamic hashing with an example. (K3) [CO4]

15.(a) Design in detail the Client - Server Architecture for DDBMS (K6) [CO5]

(or)

(b) Delineate about Object Oriented Databases and XML Databases. (K3) [CO5]

PART- C

Answer the questions (1*15 = 15)

16. Elaborate on (K3) [CO5]

i) Information Retrieval [7M]

ii) RAID Levels [8M]

******** All the Best ********

Course Code	Course Outcomes
CO1	Discuss the concepts of database to apply the Relational, ER model for design and SQL for implementation of the database.(K2)
CO2	Recognize and identify the use of normalization and functional dependencies to refine the database system.(K1)
CO3	Execute various SQL queries for the Transaction Processing & Locking using concept of Concurrency control.(K4)
CO4	Evaluate the query processing techniques for the optimization of SQL queries (K4)
CO5	Implement the indexing and hashing techniques for the organisation of database records (K3)
CO6	Appraise how the advanced databases differ from the traditional databases for the database creation(K5)