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Question Paper Code : X 20392

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Third/Fifth/Eighth Semester
Computer Science and Engineering
CS 6302 – DATABASE MANAGEMENT SYSTEMS
(Common to Information Technology, Mechanical and Automation Engineering, Mechatronics Engineering)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Write the characteristics that distinguish the Database approach with the file-based approach.
2. Define functional dependency.
3. What is data definition language ?
4. Differentiate between static and dynamic SQL.
5. What is serializable schedule ?
6. What type of locking needed for insert and delete operations ?
7. Differentiate static and dynamic hashing.
8. Give an example of a join that is not a simple equi-join for which partitioned parallelism can be used.
9. Explain data classification.
10. What are the advantages of data warehouse ?

PART – B **(5×13=65 Marks)**

11. a) i) Explain select, project and Cartesian product operations in relational algebra with an example. **(6)**

ii) Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payments associated with it. Each payment is for a particular period of time and has an associated due date and the data when the payment was received. **(7)**

(OR)

b) Explain first normal form, second normal form, third normal form and BCNF with an example. **(13)**

12. a) What is meant by semantic query optimization ? How does it differ from other query optimization technique ? Give example.

(OR)

b) Justify the need of embedded SQL. Consider the relation student (Reg. No., Name, mark and grade). Write embedded dynamic SQL program in C language to retrieve all the student's records whose mark is more than 90. **(2+11)**

13. a) Explain the Two-phase commit and Three-phase commit protocols. **(13)**

(OR)

b) Consider the following schedules. The actions are listed in the order they are scheduled and prefixed with the transaction name.

S1 : T1 : R(X), T2 : R(X), T1 : W(Y), T2 : W(Y), T1 : R(Y), T2 : R(Y)

S2 : T3 : W(X), T1 : R(X), T1 : W(Y), T2 : R(Z), T2 : W(Z), T3 : R(Z)

For each of the schedules, answer the following questions :

i) What is the precedence graph for the schedule ? **(4)**

ii) Is the schedule conflict-serializable ? If so, what are all the conflict equivalent serial schedules ? **(4)**

iii) Is the schedule view-serializable ? If so, what are all the view equivalent serial schedules ? **(5)**

14. a) i) What is RAID ? List the different levels in RAID technology and explain its features. **(8)**

ii) Illustrate indexing and hashing techniques with suitable examples. **(5)**

(OR)

b) Write short notes on :

i) Spatial and multimedia databases. **(7)**

ii) Mobile and web databases. **(6)**

15. a) Explain about distributed databases and their characteristics, functions and advantages and disadvantages.

(OR)

b) Explain types of database security and database security issues.

PART – C **(1×15=15 Marks)**

16. a) Explain in detail about spatial and multimedia databases. **(15)**

(OR)

b) Write the DDL, DML, DCL commands for the students database.

Which contains student details : name, id, DOB, branch, DOJ.

Course details : Course name, Course id, Stud. id, Faculty name, id, marks. **(15)**

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