Code: 20A05401T

R20

B.Tech II Year II Semester (R20) Regular Examinations August/September 2022

DATABASE MANAGEMENT SYSTEMS

(Common to IT, CSE, CSE (AI), CSE (AI&ML), AI&DS, CSE (IoT) and CSE (DS))

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Define weak and strong entity sets. 2M

(b) Define DBMS. 2M

(c) List the table modification commands in SQL. 2M

(d) List the types of joins. 2M

(e) What is functional dependency? 2M

(f) What is atomic domain in DBMS? 2M

(g) What is query optimization in DBMS? 2M

(h) What are the four main phases of query processing? 2M

(i) What is atomicity? 2M

(j) What is recovery? 2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 Explain the following terms with example: (i) Primary key. (ii) Candidate key. (iii) Super key. 10M

OR

3 Explain an architecture of DBMS. 10M

4 We have following relations: 10M

EMP(empno, ename, jobtitle, managerno, hiredate, sal, comm, deptno)

DEPT(deptno, dname, loc)

Answer the following queries in SQL.

(i) Find the Employees working in the department 10, 20, 30 only.

(ii) Find Employees whose names start with letter A or letter a.

(iii) Find Employees along with their department name.

(iv) Find Employees whose manager is KING.

(v) Find the Employees who are working in Smith's department

OR

5 Describe the purpose of integrity constraints and identify four main types of integrity constraints. 10M

6 What are the different symbols used in E-R diagram? 10M

OR

7 Design the relational database for a travel agency which will maintain details of customers, package holidays, resorts, hotels etc. 10M

8 Describe steps involved in query processing. 10M

OR

9 Describe the following: (i) Measures of query cost. (ii) Query optimization. 10M

10 With example describe two types of problems that can occur in a multiuser environment when concurrent access to the database is allowed. 10M

OR

11 List the ACID properties of the transactions. Explain in brief usefulness of each. 10M

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B.Tech II Year II Semester (R20) Regular & Supplementary Examinations August/September 2023

DATABASE MANAGEMENT SYSTEMS

(Common to CSE, IT, AI&DS, CSE (AI&ML), CSE (AI), CSE (IoT), CSE (DS) and CS&D)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Differentiate between data and information.	2M
	(b)	What are the various levels of database architecture?	2M
	(c)	Define database schema.	2M
	(d)	Define trigger.	2M
	(e)	What is composite attribute?	2M
	(f)	What is super type entity set?	2M
	(g)	Define query optimization.	2M
	(h)	What is view?	2M
	(i)	What is durability of transaction?	2M
	(j)	What is deadlock?	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2	(a)	Explain characteristics of DBMS.	8M
	(b)	Define data independence.	2M
		OR	
3		Explain various levels of database system with neat diagram.	10M
4	(a)	Create a procedure in SQL to perform insert and update operations of Student database.	6M
	(b)	Explain aggregate functions in SQL with example.	4M
		OR	
5	(a)	Explain set operations in SQL with examples.	6M
	(b)	Explain DML commands in SQL with examples.	4M
6		Explain various components of E-R model with notations and examples.	10M
		OR	
7	(a)	Explain super type and sub type relationship in E-R model with example.	6M
	(b)	Create E-R diagram for STUDENT and COURSE entity types with relationship ADMITS.	4M
8	(a)	Explain query optimization with example.	8M
	(b)	Define materialized view.	2M
		OR	
9		Explain natural join, inner join and outer join operations with examples.	10M
10	(a)	Explain log based recovery mechanism from failure state of database.	6M
	(b)	Explain various states of transaction.	4M
		OR	
11		Explain timestamp based protocol for ensuring serializabiliy of concurrent executions of transactions with example.	10M

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B.Tech II Year II Semester (R20) Supplementary Examinations February 2023

DATABASE MANAGEMENT SYSTEMS

(Common to IT, CSE, CSE(AI), CSE(AI&ML), AI&DS, CSE(IoT) and CSE(DS))

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define the terms logical schema and physical schema. 2M

(b) List any four applications of DBMS. 2M

(c) What is a trigger? 2M

(d) What is data integrity? 2M

(e) What is primary key and candidate key? 2M

(f) Define first normal form in DBMS. 2M

(g) Why query optimization is needed in DBMS? 2M

(h) What are the four main phases of query processing? 2M

(i) What is dead lock? 2M

(j) Difference between 2PL & 3PL. 2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 Discuss the role of DBA in DBMS. 10M

OR

3 Consider the relational database given below. Primary keys are underlined. 10M

Employee(person-name, street, city)
Works(person-name, company-name, salary)
Company(company-name, city)
Manages(person-name, manager_name)
Give an expression in the relational algebra to express each of the following queries:
(i) Find the names of the employees who work for 'XYZ corporation'
(ii) Find the names of all employees who live in the same city as the company for which they work.

4 Explain different Set operations in SQL. 10M

OR

5 What is join? Explain various types of joins with example. 10M

6 Explain types of attributes with example. 10M

OR

7 Choose from the following list an organization you are most familiar with: 10M
(i) College. (ii) Hospital. (iii) Fast-food restaurant.
Determine the entities of interest and relationships that exist between these entities. Draw the ER diagram for the organization.

8 Describe method to estimate cost of query processing. 10M

OR

9 What is query optimization? Discuss with an illustrative example. 10M

10 Explain about time stamp based protocol. 10M

OR

11 What is deadlock? When it occurs and how to avoid it? 10M

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