KADI SARVA VISHWAVIDYALAYA
B.E. 3rd (REG/ ATKT) EXAMINATION DECEMBER 2023

Subject Name : Database Management Systems
Date: 22/12/2023(Friday)   Time: 12.00 pm to 03.00 pm

Subject Code: CT306-N
Total marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempt along with its respective question number.
4. Use the last page of main supplementary for rough work.

Section-I

Q.1(A)	What is DBMS? Discuss the applications of DBMS.	(5)
Q.1(B)	Define E-R diagram. Draw an E-R diagram for Hospital Management System. Assume relevant entities and attributes for the given system.	(5)
Q.1(C)	Explain following relational algebra operations with Example. (i) Selection and Projection (ii) Natural join	(5)

OR

Q.1(C)	What is DDL? Explain all the commands of DDL in detail.	(5)

Q.2(A)	Explain the following terms. 1. Attribute 2. Entity 3. Participation Constraints 4. Weak Entity Sets 5. Mapping Cardinalities	(5)
Q.2(B)	Explain Aggregate functions with example.	(5)

OR

Q.2 (A)	Explain Types of attributes in detail.	(5)
Q.2(B)	Consider following schema and write SQL for given statements.	(5)

EMP (empno, ename, jobtitle, managemo, hiredate, sal, commission, deptno)
DEPT (deptno, dname, location)
    (a) Find the Employees working in the department number10, 20, 30 only.
    (b) Find Employees along with their department name.
    (c) Find Employees whose names start with letter A or letter a.
    (d) Display employees who are getting maximum salary in each department.
    (e) Find the Employees who get salary more than Allen's salary

Q.3 (A) *Explain Armstrong's Axioms in detail.   (5)

(B)   What is functional dependency? Explain lossless decomposition.   (5)

OR

Q.3 (A) What is normalization? What is the need for normalization? Explain any two normal forms   (5)
with suitable example(s).

(B)   Given FD's for relation R {A, B, C, D, E, F}. Find closure of FD sets by applying   (5)
Armstrong axioms?
A → B, A → C, CD → E, CD → F, B → E

Section-II

Q.4 (A) ↘ What is DCL? Also explain Grant and Revoke commands in detail.   (5)

(B)   Explain steps of query processing with the help of a neat diagram.   (5)

(C)   Explain query evaluation process using Cost based and rule (heuristic) based approach.   (5)

OR

(C)   What is Database Index? Explain Primary Index with its types.   (5)

Q.5 (A) Explain B-tree in detail with appropriate example.   (5)

(B)   What is TCL? List and Explain Commands of TCL (Transaction Control Language).   (5)

OR

Q.5 (A) What is Hashing? Explain dynamic Hashing in Detail.   (5)

(B)   What is a Transaction? Explain the States of the transaction with a neat sketch.   (5)

Q.6 (A) Explain the concept of ACID properties in DBMS?   (5)

(B)   List different access control methods and explain any one in detail.   (5)

OR

Q.6 (A) Define data warehouse. List the advantages of data warehouse.   (5)

(B)   Explain Database recovery and Log based recovery.   (5)

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B.E. SEM - III (CE/IT) MID SEMESTER EXAM – Nov '23

Date : 07/11/2023　　　　　Subject　　　: Data Database Management Systems
Time : 09:15 a.m. to 10:45 a.m.　　Subject Code: CT306-N
Day : Tuesday　　　　　　　Marks　　　: 30

Instructions:
　　1) All questions are compulsory.
　　2) Figures to the right indicate full marks.
　　3) Draw figures and give example wherever necessary

Que 1: (A) Draw database system architecture and explain it in brief.　　　　[5]

　　　　(B) List all Database Models and explain E-R Model with Example.　　[5]

Que 2:
　　　(A) With Reference to SQL explain DDL, DML and TCL with applicable Commands.　[5]

　　　(B) Why do we Normalize a Relation? Explain 3NF with Example　　[5]

OR

　　(A) Consider the following relational schemas:
　　　　EMPLOYEE (EMPLOYEE_NAME, STREET, CITY)
　　　　WORKS (EMPLOYEE_NAME, COMPANYNAME, SALARY)
　　　　COMPANY (COMPANY_NAME, CITY)
　　　　Write an SQL query for following:
　　　　(a) To create EMPLOYEE table.
　　　　(b) To insert a row (record) in WORKS table.
　　　　(c) Change the city of 'ABC Corporation' to 'Gandhinagar'.
　　　　(d) Find the names and company names of all employees sorted in
　　　　　　ascending order of company name.
　　　　(e) Do the inner join between EMPLOYEE and COMPANY tables.　　[5]

　　(B) What is Constraint? Explain Constraints in the Database with examples for each. [5]

Que 3:
　　　(A) Explain ACID Properties of Transaction with proper Examples.　　　[5]

　　　(B) What is Serializability? Explain Conflict Serializability with example.　[5]

OR

　　(A) Draw and Explain Transaction State diagram　　　　　　　　[5]

　　(B) What is Serializability? Explain View Serializability with example.　　[5]

KADI SARVA VISHWAVIDYALAYA
B.E. 3rd (REG/ ATKT) EXAMINATION DECEMBER 2022

Subject Name : Database Management Systems   Subject Code: CT306-N
Date: 21/12/2022(Wednesday) Time: 10.00 am to 01.00 pm   Total marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempt along with its respective question number.
4. Use the last page of main supplementary for rough work.

Section-I

Q.1(A) What is DBMS? List out advantages of DBMS. Explain any two advantages in detail. (5)

Q.1(B) Define E-R diagram. Draw an E-R diagram for Library Management System. Assume (5) relevant entities and attributes for the given system.

Q.1(C) Explain following relational algebra operations with Example. (5)
(i) Natural join
(ii) Cross product

OR

Q.1(C) Explain Aggregate functions with example. (5)

Q.2(A) Explain the following terms. (5)
1. Entity
2. Attribute
3. Weak Entity Sets
4. Participation Constraints
5. Mapping Cardinalities

Q.2(B) Consider following schema and write SQL for given statements. (5)
Student (RollNo, Name, Age, Sex, City)
Student_marks (RollNo, Sub1, Sub2, Sub3, Total, Average)

Write query to
(i) Display name and city of students whose total marks are greater than 225.
(ii) Display name of students who got more than 60 marks in each subject.

OR

Q.2 (A) Explain the following terms with suitable example (5)
(1) Primary Key
(2) Alternate Key
(3) Super Key

Q.2 (B) List and Explain DML commands with example. (5)

Q.3 (A) What is normalization? What is the need for normalization? Explain 1NF, 2NF and 3NF? (5)

(B) Given FD's for relation R {A, B, C, D, E, F}. Find closure of FD sets by applying (5)
Armstrong axioms?
A → B, A → C, CD → E, CD → F, B → E

<div align="center">OR</div>

Q.3 (A) What are Multivalued dependencies? Explain with an appropriate example. (5)

(B) What is functional dependency? Explain lossless decomposition. (5)

Section-II

Q.4 (A) Write down and explain different steps for query processing with suitable Diagram. (5)

(B) What is Database Index? Explain Primary Index with its types. (5)

(C) What is Hashing? Explain dynamic Hashing in Detail. (5)

<div align="center">OR</div>

(C) Discuss Evaluation of operation and also explain Materialization and Pipelining. (5)

Q.5 (A) Explain the concept of ACID properties in DBMS? (5)

(B) List and Explain Commands of TCL (Transaction Control Language). (5)

<div align="center">OR</div>

Q.5 (A) What is a Transaction? Explain the properties of the transaction. Explain the States of (5)
the transaction with a neat sketch.

(B) Explain immediate database modification log based recovery method. Also explain role (5)
of check point in log base

Q.6 (A) What is SQL injection and how does it work? (5)

(B) Differentiate between web database and distributed database. (5)

<div align="center">OR</div>

Q.6 (A) List different access control methods and explain any one in detail. (5)

(B) Define data warehouse. List the advantages of data warehouse. (5)

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ERI No:- 30302

LDRP-ITR, Gandhinagar
B.E. C.E./I.T. Semester_III Examination- Nov 2022
Subject Code:- CT306 N   **Subject Name:- Database Management Systems**
Date:- 09/11/2022   **Total Marks:- 30**

Instructions:

1. Answer each section in separate Answer sheet.
2. All questions are **Compulsory**.
3. Indicate **clearly**, the options you attempt along with its respective question number.
4. Make suitable **assumption** where needed.

Q-1   Answer the following questions. (All compulsory)
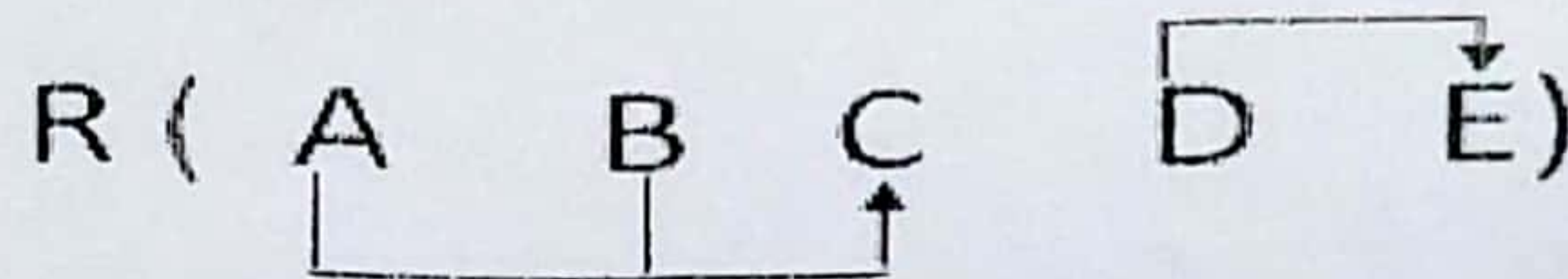(A)   Explain about data abstraction.   [5]

(B)   State the applications for database.   [5]

Q-2   Answer the following questions.
(A)   Give difference between trivial and non-trivial dependencies.   [5]
(B)   [5]

$$R(A \quad B \quad C \quad D \quad \breve{E})$$

Consider above relation and find it's Closer of FD, Prime attributes, Non prime attribute and relational tables,

OR

Q-2   (A)   What is relational database? Explain any one axiom by giving example.   [5]

(B)   What is Lock? Explain types of Locks. $A \to B \quad B \to C$ [5]
$A \to BC$

Q-3   Answer the following questions.
(A)   Define and Explain use of following symbols in E-R Diagram   [5]

(1) Dotted rectangle. (2) Diamond (3) Doubly outlined rectangle (4) Dashed Ellipse

(5) Rectangle

(B)   What is ACID property? Explain atomicity and integrity.   [5]

OR

Q-3   (A)   Write a SQL query for below single line functions.   [5]
    1) Trim   2) Lpad   3) Lenght   4) Concat   5) Upper

(B)   Create Following Tables. Insert at least Five Rows in each table and   [5]
write SQL Queries for given questions:
Table Name: Customer (CNUM, CNAME, CITY, RATING, SNUM)
Table Name: Order (ONUM, AMOUNT, ODATE, CNUM, SNUM)
1) Give all the information about all the customers with salesman Number 1001.

2) List all customers excluding those with rating <= 100 or they are located in Rome.

3) Find the highest rating in each city.