

KADI SARVA VISHWAVIDHYALAYA

B.E Semester: III Computer Engineering / Information Technology

Subject code: CE305 / IT 305

Subject Name: Database Management System

Date: 28/12/2016 (Wednesday)

Time: 10:30 am to 01:30 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 of rough work.

Section-I

- Q-1(A) What is Schedule? Explain Serial and Concurrent Schedule. Also explain with example that Serial schedule and Concurrent Schedule may generate same outcome. 5
- (B) During its execution, a transaction passes through several states, until it finally commits or aborts. List all possible sequences of states through which a transaction may pass. Explain why each state transition may occur. 5
- (C) Consider the following two transactions: 5

```
T1: read(A);
    read(B);
    if A = 0 then B := B + 1;
    write(B).

T2: read(B);
    read(A);
    if B = 0 then A := A + 1;
    write(A).
```

Add lock and unlock instructions to transactions T_1 and T_2 , so that they observe the two-phase locking protocol. Can the execution of these transactions result in a deadlock?

OR

- (C) Show that the two-phase locking protocol ensures conflict serializability, and that transactions can be serialized according to their lock points. 5

- Q-2(A) Explain steps involved in processing a query. 5
- (B) Explain Log Based Recovery. 5

OR

- Q-2(A) Explain Equivalent expressions in form of Initial expression tree and Transformed expression tree. 5
- (B) Explain Difference between
(a) Where and Having Clause.
(b) Char and Varchar2 Datatypes. 5

- Q-3 (A) What is Trigger? Explain types and components of Trigger. 5
- (B) Create a PL SQL Block which return the sum of the salaries for all employees in the specific department. 5

OR

P.T.O.

Q-3 (A)	What is Cursor? Explain Controlling Explicate Cursor with Life cycle.	5
(B)	Create a Procedure or Function which increase the salary of specific employee to specific percentage.	5

Section-II

Q-4 (A)	Consider the following relational schemas used to monitor the effect of Demonetisation :	5
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Account (ac_no, ac_name, act_type)

Transaction (ac_no, trans_date, tran_type, tran_amount, balance)

Note: act_type may be 'S' for saving or 'C' for current or 'J' for Jan-Dhan

tran_type may be 'D' for deposit or 'W' for withdrawal.

1. Create Account Table with Constraints
2. Create Transaction Table
3. Find out those saving transactions that took place between 13th November 2016 and 31st December 2016 and have Deposited amount greater than Rs. 2,00,000.
4. Create a View that display all Jan-Dhan account information having a balance Rs. 0. So that Rs. 10000 can be added in future for beneficiary.
5. Debit (Withdraw) 20% tax from those accounts whose balance is greater than Rs. 5,00,000.

(B)	Explain different applications of Database.	5
(C)	What is Data Abstraction? Explain three levels of Data Abstraction.	5

OR

(C)	Explain Role and Responsivities of Database Administrator.	5
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Q-5 (A)	Explain the Concepts of Generalization and Specialization.	5
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(B)	Draw E-R diagram of Car Insurance Company. Clearly indicate attributes, keys, the cardinality ratios and participation constraints.	5
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OR

Q-5 (A)	Explain \cap , X , $-$, \cup , \bowtie	5
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(B)	Draw E-R diagram of Digital Wallet (i.e. PayTm, Freecharge, PayU etc.) Clearly indicate attributes, keys, the cardinality ratios and participation constraints.	5
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Q-6 (A)	What is Multivalued Dependency? Explain 4NF with example.	5
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(B)	Explain in Centralized and Parallel Database Structures.	5
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OR

Q-6 (A)	What types of problem should occur if any database/table is not normalized?	5
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Mention the properties of ideal normalized relation.

(B)	Explain all types of Join with example.	5
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Enrollment							
No.							

KADI SARVA VISHWAVIDYALAYA
B.E. Semester-III Examination (December/ 2015)

SUBJECT CODE: CE 305/IT 305
DATE: 7/12/2015

TIME: 10.30 A.M. to 01:30 P.M.

SUBJECT NAME: Database Management System
TOTAL MARKS: 70

Instructions:

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

SECTION - 1

- Q-1.** a) Explain database system architecture with diagram in detail. 5
b) Explain Transaction-server system architecture. 5
c) What is Indexing? Explain Types of Indexing. 5

OR

- c) Explain the following terms 5
i) DML ii)DCL iii)DDL

- Q-2.** a) Implement following relation using SQL query. 5

Branch(branch_name,branch_city)
Account(branch_name, acc_no, balance)
Depositor(Customer_name, acc_no)

- (i) Find out list of customer who have account at ‘Infocity’ branch.
(ii) Find out all customer who have account in ‘Gandhinagar’ city and balance is greater than 25,000.
(iii) Find out list of all branch name with their maximum balance.

- b) Explain following relational algebra operation. 5

(i)Natural join operation (ii) Selection and projection operation

OR

- Q-2.** a) Implement following relation using SQL query. 5

Student(std_rollno, std_name, branch)
Exam(std_rollno, subject_code, obtained_marks , paper_code)
Papers(paper_code, paper_satter_name, university)

- (i) Display name of student who got first class in subject ‘130703’.
(ii) Display name of all student with their total mark.

- (iii) Display list number of student in each university.
(iv) Display list of student who has not given any exam.
- b) Explain Implementation of Atomicity and Durability. 5

- Q-3. a) Draw E-R diagram for Library Management System. 5
b) Define functional dependency. Explain trivial and non-trivial FD with example. 5

OR

- Q-3. a) Draw E -R Diagram for Banking System. 5
b) What is normalization? Explain BCNF with example. 5

SECTION – 2

- Q-4. a) What is View? Give the advantages of View. 5
b) What is Authorization? Explain Granting and Revoking of Privileges. 5
c) What is serializability? Explain view serializability with example. 5

OR

- c) What is cursor? Explain with example. 5

- Q-5. a) Explain evaluation of expression process in query optimization. 5
b) Explain generalization and specialization in ER diagram with suitable example. 5

OR

- Q-5. a) Explain the steps in query processing? How the cost of query is measured? 5
b) Explain commit and rollback command with example. 5

- Q-6. a) Explain two phase locking protocol with example. 5
b) Explain Tablespace in database. 5

OR

- Q-6. a) Explain ACID properties of Transaction with suitable example. 5
b) Explain Segments. 5

*******BEST OF LUCK*******

KADI SARVA VISHWAVIDHYALAYA

B.E Semester: III Computer Engineering/Information Technology

Subject code: CE305 / IT 305

Subject Name: Database Management System

Date: 28/04/2014

Time:

Total Marks: 70

Instructions:

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

Section-I

Q-1 (A)	Consider following relations: Salseman (Snum#,sname,city,commission) Customer(Cnum#,cname,city,rating,Snum) Answer the following queries in SQL. (1) Create a view that shows all the number of salesmen in each city. (2) Double the commission of all salesmen of London (3) List the name and number of all salesmen who has more than Zero Customer. (4) Find all customers whose salesmen are in SURAT and LONDON (5) Create a duplicate of the salesmen table with a name Multicust#. Now Delete all the rows from the salesmen table.	5
(B)	Explain Centralized and Client Server Architecture with diagrams	5
(C)	Explain in Brief (a) Explain Set Operations (b) Explain Generalization with Example	5
	OR	
(C)	Explain in Brief (a) Where Clause and Having Clause (b) Data Isolation Property	
Q-2 (A)	Explain Views and Types of Views in Database	5
(B)	Construct E-R diagram of the bank. It provides different kinds of bank accounts. And loans. It operates number of branches.	5
	OR	
Q-2 (A)	Explain Temporary Storage, Permanent Storage and Persistent Storage with Example	5
(B)	Draw and Explain Symbols used in E-R Diagram and Draw the E-R diagram of KSV Admission Process	5
Q-3 (A)	Why do we Normalize a Relation? Explain 3NF with Example	5
(B)	Explain in Brief (a) Cross Join and Natural Join (b) Different Types of Failures in Database	5
	[P.T.O.]	

OR

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|---------|----------------------------------------|---|
| Q-3 (A) | Explain BCNF with Example | 5 |
| (B) | Explain in Brief | 5 |
| | (a) Multiple and Multilevel Attributes | |
| | (b) Types of Failures in Database | |

Section-II

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|---------|---------------------------------------------------------------------------------------------------------------|---|
| Q-4 (A) | Explain Commit and Rollback Commands. | 5 |
| (B) | Explain Two-Phase Locking Protocol with Example. Also explain strict and rigorous Two-Phase Locking Protocols | 5 |
| (C) | Explain in Brief | 5 |
| | (a) Deadlock Detection | |
| | (b) Atomicity and Durability Properties of Transaction | |

OR

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|-----|------------------------------|---|
| (C) | Explain in Brief | 5 |
| | (a) Conflict Serializability | |
| | (b) Responsibilities of DBA | |

- | | | |
|---------|-------------------------------------------------------|---|
| Q-5 (A) | Explain various Steps involved in processing a Query | 5 |
| (B) | (a) Explain Database Recovery | 5 |
| | (b) Explain Difference between Procedure and Function | |

OR

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|-----|--------------------------------------------------------------------------------|---|
| (A) | Explain evaluation of expression process in Query Optimization | 5 |
| (B) | (a) What is Transaction? Which types of information stored in Transaction log? | 5 |
| | (b) Explain DDL and DML | |

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|---------|-------------------------------------------------------------------------------------------------------|---|
| Q-6 (A) | Explain Database Triggers. | 5 |
| (B) | Explain NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, and CHECK in the Database with examples for each. | 5 |

OR

- | | | |
|-----|----------------------------------------------------------------------------------------------------------|---|
| (A) | Consider Tables described in Que – 1 (Section –I) for this question: | 5 |
| | (a) Create a Procedure or Function called ADD_SALES to insert new row into Salesman table. | |
| | (b) Create Procedure or Function called UP_CUST to update rating of customer whose city is “Gandhinagar” | |
| (B) | Using GRANT and REVOKE Explain Database Authorization Control | 5 |

KADI SARVA VISHWAVIDHYALAYA

B.E.SEMESTER-III

Subject Code:-CE 305/IT305

Subject Name:- DATABASE MANAGEMENT SYSTEM

Date:- 28/11/2013

Time:- 10.30 to 1.30

Total Marks:-[70]

Instructions:

1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section - I

Q - 1.(All compulsory)

- (A) Explain 2 tier and 3 tier architecture in detail. [5]
(B) What are the advantages of database management systems over file system? [5]
(C) Explain DDL commands with syntax & example. [5]

OR

- (C) Explain DML commands with syntax & example. [5]

Q - 2. Answer the following question.

- (A) Define key, super key, primary key, alternate key & foreign key with example. [5]
(B) Explain total participation, partial participation & weak entity set in detail. [5]

OR

Q - 2. Answer the following question.

- (A) Define entity & relationship set. Explain types of attributes. [5]
(B) Explain types of Join with syntax & example. [5]

Q - 3. Answer the following question.

- (A) Define functional dependency, trivial functional dependency, non-trivial functional dependency with example in detail. [5]
(B) Draw the E-R diagram of library management system with appropriate use of cardinality, aggregation, specialization, etc. [5]

OR

Q - 3. Answer the following question.

- (A) Why normalization required in DBMS? Explain 1st & 2nd normal form with example. [5]

(B) Draw the E-R diagram of Hospital management system with appropriate use [5]
Of cardinality, aggregation, specialization, etc.

Q - 4. (All Compulsory)

- (A) Define Transaction & explain ACID properties. [5]
(B) Explain serializability. [5]
(C) Define View in SQL and explain in detail with syntax & example. [5]

OR

- (C) Explain Trigger with syntax & example. [5]

Q - 5. Answer the following question.

- (A) Explain concurrency control with Locking mechanism. [5]
(B) Explain query processing. [5]

OR

Q - 5. Answer the following question.

- (A) Explain deadlock handling in transaction. [5]
(B) Explain log-based transaction recovery in detail. [5]

Q - 6. Answer the following question.

- (A) Explain indexing & hashing. [5]
(B) Solve below queries. [5]

Tables.

1. Person(pid, pname, padd, pcity, pzipcode, pstate, pcountry)
2. Person(pid, pname, padd, pcity, pzipcode, pstate, pcountry)

- (1) Select those records from Person tables whose belong to Indian country.
(2) Update pzipcode to 382565 where pid is 'p001'.
(3) Retrieve all person information whose name start with 'p' and end with 'a'.
(4) Retrive the current date.
(5) Show the structure of PassportInfo.

OR

Q - 6. Answer the following question.

- (A) Explain data encryption. [5]
(B) Solve below queries. [5]

Tables.

1. customer(cust_id, cust_name, annual_revenue, cust_type)
2. shipment(shipment_no, cust_id, weight, truck_no, city_name, ship_date)

- (1) Give the name of all customers that are 'retailers'.
(2) Give the name of all customers that have a capital 'D' as the third character in their name.
(3) What is the average weight of a shipment going to Atlanta?
(4) Delete all the customer from database with customer type as retailer.
(5) Alter data type of cust_name from 'char' to 'varchar(20)'.

KADI SARVA VISHWAVIDHYALAYA

B.E Semester: III Computer Engineering / Information Technology

Subject code: CE305 / IT 305

Subject Name: Database Management Systems

Date: 19/11/2014 (Wednesday)

Time: 10:30 am to 01:30 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 of rough work.

Section-I

- Q-1 (A) What are transaction control commands? Explain any two commands. 5
(B) Draw and explain Transaction State Diagram. 5
(C) Explain in Brief
(a) What is deadlock? Explain Wait-For-Graph.
(b) Explain two good reasons for allowing concurrent execution of Transactions.
- OR**
- (C) Explain in Brief
(a) View Serializability.
(b) Different types of Database Users.
- Q-2 (A) Explain Parallel and Distributed Database Architecture. 5
(B) Explain system recovery procedure with check point record concept. 5

OR

(A) Explain various Steps involved in processing a Query. 5
(B) Explain in Brief
(a) What is Lock? Explain types of Locks.
(b) Difference between DELETE and TRUNCATE.

Q-3 (A) What is Cursor? Explain Controlling Explicate Cursor with Life cycle. 5
(B) Explain candidate key, primary key and foreign key with example.

OR

(A) Consider Tables described in Que – 4 A (Section – II) for this question:
(a) Create a Procedure or Function called EADD to insert new row into WORKS table.
(b) Create Procedure or Function called TREMP to truncate the EMPLOYEE table.

(B) Explain in Brief
(a) Natural join operation.
(b) Selection and projection operation.

Section-II

Q-4 (A) Consider the following relational schemas: 5

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 Cartesian Product (Cross Join) between EMPLOYEE and COMPANY tables.

(B) Explain database system architecture with diagram in detail. 5

(C) Explain in Brief 5

- (a) Data Redundancy and Inconsistency.
- (b) Explain Specialization with Example.

OR

(C) Explain in Brief

- (a) Data Security and Integrity.
- (b) Wait-Die and Wound – Wait scheme for deadlock prevention.

Q-5 (A) Explain all Group (Aggregate) Functions of SQL. 5

(B) Information about films contains information about movies, stars and studios. Movies have a title, year of production, length and the film type. Stars have a name and address. Studios have an owner and a banner. Movies are shot in studios which own them. A movie is shot in only one studio. Stars are connected to one or more studios but can act in any film which may or may not be owned by the studio. Arrive at an E-R diagram. Clearly indicate attributes, keys, the cardinality ratios and participation constraints.

OR

Q-5 (A) Explain BETWEEN, IN and LIKE conditions. 5

(B) In an organization several projects are undertaken. Each project can employ one or more employees. Each employee can work on one or more projects. Each project is undertaken on the request of client. A client can request for several projects. Each project has only one client. A project can use a number of items and an item may be used by several projects. Draw an E-R diagram.

Q-6 (A) State Codd's 12 rules for Relational Model. 5

(B) Explain in Brief 5

- (a) What is non-loss decomposition in database? How it is useful in Database.
- (b) Explain evaluation of expression process in query optimization.

OR

Q-6 (A) Why do we Normalize a Relation? Explain 3NF with Example. 5

(B) Explain in Brief 5

- (a) Natural join operation.
- (b) Selection and projection operation.