

**KADI SARVA VISHWAVIDYALAYA**  
**BE SEMESTER-III (New) Examination November-2024**

**Subject Name: Database Management System****Subject Code: CT306-N****Date: 20/11/2024****Time: 12:30pm – 03:30pm****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 option you attempt along with its respective question number.
5. Use the last page of main supplementary of rough work.

**Section-I**

- Q-1** (A) Explain Data Independence. [5]  
(B) Define: DBMS, Primary Key, Candidate Key, Super Key, Foreign Key. [5]  
(C) Difference between Traditional File System and Database Management System. [5]
- OR**
- (C) Explain the concept of generalization and specialization. [5]
- Q-2** (A) Draw and Explain Symbol used in E-R Diagram and Draw the E-R Diagram of Library Management System. [5]  
(B) Explain TCL, DCL, DRL with applicable Commands. [5]
- OR**
- (A) Why do we Normalize a Relation? Explain 1NF and 2NF with Example. [5]  
(B) Explain the steps of Query Processing with the help of neat diagram. [5]
- Q-3** (A) Explain Relational Model. [5]  
Consider the following relational schemas:  
(B) EMPLOYEE (EMP\_ID, EMP\_NAME, CITY) [5]  
WORKS (EMP\_NAME, COMPANY\_NAME, 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 name of employee whose salary is 50000.  
(e) Make EMP\_ID as Primary key.
- OR**
- (A) Explain Lossy/Lossless Join (5NF) with Example. [5]  
(B) Draw and Explain System Development Life Cycle. [5]

## **Section-II**

- Q-4** (A) What is concurrency? Explain the dirty read problem with proper example. [5]  
(B) Define Functional Dependency. Explain trivial and non-trivial FD with example. [5]  
(C) What is Constraint? Explain any two constraints with example. [5]

**OR**

- (C) Write a short note on – Hashing. [5]

- Q-5** (A) Explain Heuristic and Cost based Estimation in optimization. [5]  
(B) Explain ACID Properties of Transaction with proper Example. [5]

**OR**

- (A) Explain Time-Stamp based Protocol. [5]  
(B) What is authorization and authentication? Explain the access control in database. [5]

- Q-6** (A) What is serializable schedule? Explain View Serializability. [5]  
(B) Explain BCNF (Boyce Code Normal Form) with example. [5]

**OR**

- (A) Explain Two-Tier and Three-Tier Database Architecture. [5]  
(B) Explain all aggregate function with example. [5]

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