

Seat. No. \_\_\_\_\_

## KADI SARVA VISHWAVIDYALAYA

BE SEMESTER-III (New) Examination April-2025

Subject Name: Database Management Systems

Subject Code: CT306-N

Date: 03/05/2025

Time: 10:00am – 01:00pm

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) What is DBMS? Explain any four real time applications of DBMS. [5]
- (B) Explain Three Level Architecture of DBMS. [5]
- (C) Explain specialization and generalization concepts in ER diagrams with suitable examples. [5]

OR

- (C) Explain advantages of Database Systems over File Processing Systems. [5]
- Q-2 (A) Draw E-R Diagram for the: Online Shopping System. [5]
- (B) What is a Candidate Key? Explain Primary Key and Foreign Key with examples. [5]

OR

- (A) What is Join? Explain different Join Operations with Example. [5]
- (B) What is function dependency? Explain type of Function Dependency with example. [5]

- Q-3 (A) Explain BCNF with example. [5]
- (B) EMPLOYEE (EMP\_ID, EMP\_NAME, CITY)  
WORKS (EMP\_NAME, COMPANY\_NAME, SALARY)  
COMPANY (COMPANY\_NAME, CITY)  
Write an SQL query for following: [5]
- (a) To create EMPLOYEE table.
  - (b) To insert a row (record) in WORKS table.
  - (c) Change the city of 'Ahmedabad' to 'Surat'.
  - (d) Find the name of employee whose salary is 8000.
  - (e) Add a column STATE in company table.

OR

- (A) Explain loss less joins and dependency preserving decompositions. [5]
- (B) Explain Query Optimization Process. [5]

## Section-II

- Q-4** (A) Write down and explain different steps for query processing with suitable example. [5]  
(B) What is normalization? What is the need for normalization? Explain 1NF, 2NF. [5]  
(C) Explain dynamic Hashing in Detail. [5]

**OR**

- (C) What is indexing in DBMS? Explain the types of indexing in dbms. [5]

- Q-5** (A) Explain Temporary Storage, Permanent Storage and Persistent Storage with Example. [5]

- (B) Explain the Concept of ACID properties in DBMS. [5]

**OR**

- (A) Write a short note on: Two phase locking protocol. [5]

- (B) Compare conflict Serializability and view Serializability. [5]

- Q-6** (A) Explain Transaction Control Commands. [5]

- (B) Differentiate Authentication and Authorizations. [5]

**OR**

- (A) Define data warehouse. List the advantages of data warehouse. [5]

- (B) Using GRANT and REVOKE Explain Database Authorization Control. [5]

---X---