

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER- V • EXAMINATION – SUMMER 2015

Subject Code: 650004

Date: 08/05/2015

Subject Name: Advanced Database Management System

Time: 02:30 pm to 05:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) List different types of discretionary privileges. Give two examples of each. **07**
Explain the process of granting and revoking of privileges.
- (b) What is the difference between Key and Ordering Field? Explain the concept of Primary Index with diagram. **07**
- Q.2** (a) Explain in brief the Three-Schema Architecture and Data Independence. **07**
- (b) (i) Differentiate between fixed-length records and variable-length records. **07**
What are the reasons for having variable-length records?
(ii) What is the purpose of Dirty bit and Pin-Unpin bit?
- OR**
- (b) Discuss the advantages of using DBMS Approach. **07**
- Q.3** (a) Differentiate between Deferred Update and Immediate Update. How does it affect UNDO and REDO operations to be performed in Recovery Process? **07**
- (b) What is Encryption? List any two standard private key algorithms used for encryption. Which is better and why? How private key algorithms are different than public key algorithms? **07**
- OR**
- Q.3** (a) Discuss the concept of tuning the database design by de-normalization, vertical partitioning, and horizontal partitioning with suitable examples. **07**
- (b) (i) How will you decide whether to index on an attribute or not? How will you decide whether to setup clustered index or not? **07**
(ii) How attribute versioning is better than tuple versioning? What do you mean by time-varying and non time-varying attributes?
- Q.4** (a) What do you mean by Distributed Database? Explain advantages of Distributed Databases. **07**
- (b) Explain the concept of Data Fragmentation in DDBMS. **07**
- OR**
- Q.4** (a) Consider R1(A, B, C) & R2(D, E, F). Explain how relational operations such as Selection, Projection, Cartesian Product, Natural Join, Intersection, Union, and Difference can be specified as Datalog rules. **07**
- (b) List different types of Object-Relational support in SQL-99. Explain Type Constructors. **07**
- Q.5** (a) List the characteristics of Biological Data. **07**
- (b) Write a short note on Intermittently Synchronized Databases. **07**
- OR**
- Q.5** (a) (i) Differentiate between Raster Data Model and Vector Data Model. **07**
(ii) Explain in brief Global Object Name and Connect Descriptor.
- (b) Write a short note on Database Links. **07**
