

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER-V • EXAMINATION – WINTER 2015**

**Subject Code: 650004****Date:08/12/ 2015****Subject Name: Advanced Data Base Management Systems (ADBMS)****Time:10.30 AM TO 01.00 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) Explain the following concept in brief.
1. Allocating file blocks on disk. **02**
  2. Schemas, Instances and Database state. **03**
  3. Indexed sequential file. **02**
- (b) What do you mean by distributed database? Explain advantages of distributed databases. Also discuss the types of distributed database. **07**
- Q.2** (a) Differentiate between fixed-length records and variable-length records. What are the reasons for having variable-length records? Discuss the types of separator characters needed for each. **07**
- (b) Answer the following.
1. Explain the six ingredients of Public Key Encryption. **03**
  2. List and explain the commonly accepted threats to database security. **04**
- OR**
- (b) What are the goals of tuning? Discuss the types of problems encountered during tuning. Also discuss the different types of statistics required for query tuning. **07**
- Q.3** (a) What are the differences among primary, secondary and clustering indexes? Why can we have at most one primary or clustering index on a file, but several secondary indexes? How does multilevel indexing improve the efficiency of searching an index file? **07**
- (b) What is fragment of a relation? What are the main types of fragments? Why is fragmentation a useful concept in distributed database design? **07**
- OR**
- Q.3** (a) What is meant by transaction rollback? What is meant by cascading rollback? Which recovery techniques do not require any rollback? Discuss the UNDO and REDO operations and the recovery techniques that use each. **07**
- (b) What are the problems encountered in DDBMS while considering concurrency control and recovery? Discuss the different techniques to deal with recovery and concurrency control in DDBMS. **07**
- Q.4** (a) Discuss how time is represented in temporal databases. What is transaction time relation? Describe how the insert, delete and update commands should be implemented on a transaction time relation. **07**
- (b) Discuss the following SQL standard components: SQL/ Foundation, SQL/CLI (Call Level Interface), SQL/PSM (Persistent Stored Models), SQL/Binding and SQL/Temporal. **07**

**OR**

- Q.4 (a)** Describe the concept of deductive database. What is the similarity between rules used in deductive databases and views in the relational model? **07**
- Q.4 (b)** What is the nested relational model? Illustrate an application where it is useful. **07**
- Q.5 (a)** Discuss the nature of multimedia data and applications in Multimedia databases. Also discuss where the multimedia databases are applicable. **07**
- (b)** What is Listener? Which are the additional parameters of listener.ora file? **07**

**OR**

- Q.5 (a)** What is Genome Data Management? Explain the characteristics of biological data. **07**
- (b)** Explain the process of bulk deletes with the truncate command using an example. **07**

\*\*\*\*\*