

GUJARAT TECHNOLOGICAL UNIVERSITY**M.C.A.- SEMESTER – II • EXAMINATION – WINTER 2012****Subject code: 2620003****Date: 27-12-2012****Subject Name: Database Management System (DMBS)****Time: 02:30 pm – 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)** Define the following in terms. **07**
- | | |
|--------------------------|------------------|
| 1. Mapping cardinalities | 2. Additive join |
| 3. Super key | 4. Atomicity |
| 5. Redundancy | 6. Metadata |
| 7. Functional Dependency | |
- (b)** Discuss three level architecture of DBMS. **07**
- Q.2 (a)** Why do we require normalization? Discuss 1NF, 2NF and 3NF showing Functional dependency with suitable example. **07**
- (b)** Explain Following terms with example. **07**
1. Generalization
 2. Specialization
 3. Aggregation
- OR**
- (b)** What is ERD? Explain its Notations in detail. **07**
- Q.3 (a)** Explain the theory of Functional Decomposition. **07**
- (b)** Attempt the following
1. Discuss concept of BCNF giving example. **04**
 2. Discuss the concept of canonical cover. **03**
- OR**
- Q.3 (a)** Find the closer set of F^+ from the given relational $R=(A,B,C,G,H,I)$ and the set of FD's are **07**
- $F=\{A \rightarrow B,$
 $A \rightarrow C,$
 $CG \rightarrow H,$
 $CG \rightarrow I,$
 $B \rightarrow H\}$
- (b)** Attempt the following
1. State the Difference between DBMS and RDBMS **04**
 2. List the Seven Axioms of Armstrong. **03**
- Q.4 (a)** Explain the Structure of relational Database Model. **07**
- (b)** Explain the Fundamentals of Relational Algebra Operations. **07**
- OR**
- Q.4 (a)** Explain the concept of Serializability and Recoverability. **07**
- Q.4 (b)** Discuss the features of good relational Design. **07**
- Q.5 (a)** What is Transaction? Explain the Concept of Transaction. **07**
- (b)** Define Deadlock. Discuss deadlock prevention and detection method. **07**
- OR**
- Q.5 (a)** Define Lock and Discuss the Types of Locks. **07**
- (b)** What is transaction log? Discuss the concept of checkpoint showing transaction log. **07**