Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–II • EXAMINATION – SUMMER 2017

Subject Code: 2620003 **Date:07/06/2017**

Subject Name: Database Management System (DBMS)

Time:10:30 am - 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)** Which are the users of DBMS? Draw a diagram of generalize architecture of Database management System. **7**

(b) Define following. **7**

1. DBMS 2.Schema 3. Logical data independence 4.Strong Entity set 5. Functional dependency 6. Super key 7. Normalization

Q.2 **(a)** Explain Select, Projection, Natural Join and Cartesian product operation on relations in context with Relational Algebra. **7**

(b) Draw an E-R diagram of online purchase of electronics Items and its billing. Make necessary assumptions add at least one multivalued attribute and derived attribute. **7**

OR

(b) With real time examples explain concept of generalization and specialization. **7**

Q.3 **(a)** What is weak entity? Using an E-R Diagram explain its concept . **7**

(b) Write short note on requirements of 1 NF,2NF and 3NF. **7**

OR

(a) Define Transaction. Explain properties of transactions. **7**

(b) What are the advantages of concurrent schedule? Explain with example conflict serializability. **7**

Q.4 **(a)** What is Phantom Problem? Explain with respect to Delete and Insert operation. **7**

(b) Which condition is called deadlock? Explain any one technique of deadlock prevention. **7**

OR

(a) Define deadlock. Which are the modes of lock ? Explain any one schedule which shows use of lock. **7**

(b) How do we perform delete operation using locking protocol? **7**

Q.5 **(a)** Write short not on log-based Recovery. **7**

(b) i) List all the person's name and Id who are having Hobby stamps or coins collection using relational algebra **7**

ii) Rename the column Name with P_name using relational algebra.

Person:

Id	Name	Address	Hobby
1123	John	123 Main	stamps
1123	John	123 Main	coins
5556	Mary	5 Lake Dr.	hiking
9876	Bart	10Pine St.	stamps

OR

(a)	Write short note on BCNF.	**7**
(b)	Give classification of failure and storage.	**7**