Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–II • EXAMINATION – SUMMER • 2014

Subject Code: 2620003 **Date: 19-06-2014**

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)** What do you mean by Data and Database? How database management system is advantageous than file management system? Explain. **07**

(b) Define: **07**

1. Constraints on 2NF
2. Primary Key
3. DBA's Role
4. Derived Attribute
5. Transaction log
6. Minus Operator
7. Wound-Wait

Q.2 **(a)** How and Why we use specialization and generalization in E-R? Explain with example. **07**

(b) Differentiate between Data Definition language and data manipulation languages with suitable example. **07**

OR

(b) Explain View serializabilty in brief. Why do we emphasize conflict serializabilty rather than view serializabilty? **07**

Q.3 **(a)** A non-government organization (NGO) depends on the number of different types of persons for its operations. The NGO is interested in different types of persons namely as volunteers, donors and patrons. The attributes of such persons are person identification number, name, address, city, pin code and telephone number. The patrons have only a date-elected attribute while the volunteers have only skill attribute. The donors have a relationship 'donates' with and ITEM entity type. A donor must have donated one or more items and an item may have no donor, or one or more donors. These are person's othan than donors, volunteers and patrons who are interested to the NGO, so that a person need not belong to any of these groups. On the other hand, at a given time a person may belong to two or more of these groups. **07**

Draw an Entity Relationship Diagram for NGO.

(b) What do you mean by degree of relationship? Discuss with the various types of relationship with diagram. **07**

OR

Q.3 **(a)** Explain following relational operators with example. **07**

i. Projection ii. Cartesian Product

(b) List out the types of database modification. Explain uncommitted modification technique in brief. **07**

Q.4 **(a)** Explain Armstrong rules with its usefulness in brief. **07**

	(b)	Differentiate between weak entity set and strong entity set. How weak entity set can be converted into a strong entity set? Explain with example.	**07**

OR

Q.4	**(a)**	What is functional dependency? How functional dependency works as crucial role in database design? Explain with example.	**07**
	(b)	Explain following relational operators with example. i. Division ii. Intersect	**07**
Q.5	**(a)**	What do you mean by Deadlock? In which situation it occurs? How we can prevent deadlock? Explain.	**07**
	(b)	A life insurance company has a large number of policies. For each policy, the company wants to know the policy holder's social security number, name, address, date of birth, policy number, annual premium and death benefit amount. The company also wants to keep track of agent number, name and city of residence of the agent who made the policy. A policy can have many policies and an agent can make many policies. Create a relational database for the above case with all relations in 4NF.	**07**

OR

Q.5	**(a)**	Explain 3NF with example. How it differs from BCNF?	**07**
	(b)	What do you mean by lock? Explain Two phase locking with its advantages and disadvantages.	**07**

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