Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– V EXAMINATION – SUMMER - 2016

Subject Code:650004 Date:11/05/ 2016

Subject Name: Advanced Database Management Systems

Time: 10:30 AM to 01:00 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)**	Describe the Physical design factors that affect the performance of applications and transactions.	**07**
	(b)	1. Discuss Component modules of DBMS and its interactions with diagram.	**05**
		2. Double buffering	**02**
Q.2	**(a)**	1. What are the goals of tuning? List the typical inputs to the tuning process.	**04**
		2. List and explain the commonly accepted threats to database security.	**03**
	(b)	1. What are the relative merits of using DAC or MAC	**04**
		2. What is digital signature? How do they work?	**03**
		OR	
	(b)	What are the typical security classifications? Discuss the simple security property and the *-property, and explain the justification behind these rules for enforcing multilevel security.	**07**
Q.3	**(a)**	Discuss the immediate update recovery technique in both single-user and multiuser environments. What are the advantages and disadvantages of immediate update?	**07**
	(b)	1. Write an algorithm for searching a nondense multilevel primary index with t levels. Assume that overflow records are ignored.	**04**
		2. Describe the WAL protocol.	**03**
		OR	
Q.3	**(a)**	What is the main difference between primary index and clustering index ?how does insertion of a record in a block affect a primary or clustering index-considering the cases of with and without overflow?.	**07**
	(b)	1. Define and explain the different types of distribution transparency.	**04**
		2. Explain the concept of Steal/No-Steal and Force/No-Force. What is the usage of dirty bit and pin-unpin bit?	**03**
Q.4	**(a)**	What is Distributed Database? Explain the concept of Fragmentation and Replication. What benefits do they offer?	**07**
	(b)	What is Genome Data Management? Explain the characteristics of biological data.	**07**
		OR	
Q.4	**(a)**	What is Temporal Database? Discuss benefits of Temporal Database giving example.	**07**
	(b)	Discuss the nature of multimedia data and applications in Multimedia databases. Also discuss where the multimedia databases are applicable.	**07**

Q.5	**(a)**	List the object relational features included in SQL-99. Write the rules dealing with inheritance. Give an example to implement inheritance.	**07**
	(b)	1. Explain any four methods defined by GIS standards for testing spatial Relations and spatial analysis.	**04**
		2. What is meant by Data Allocation in Distributed Database design?	**03**

OR

Q.5	**(a)**	Describe the concept of deductive database. What is the similarity between rules used in deductive databases and views in the relational model?	**07**
	(b)	1. What is Service Names? What is the problem with client configurations using tnsnames.ora file? What are the solutions for it?	**04**
		2. Write a short note on Database Links.	**03**

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