Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY MCA INTEGRATED SEMESTER-III EXAMINATION - SUMMER 2016

o			5-2015	
Tiı	_	Name: Database Management Systems (DMS) 2:30 pm To 01:00 pm Total Marks: 70		
IIIS	1. 2.	Attempt all the questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	 (i) Materialized view's contents are computed and stored. (ii) Immediate update technique does not require maintaining the old value in the update log. (iii) Audit trial is a special file that automatically keeps track of all operations performed by the users. (iv) Concurrent execution improves the Throughput of a Transaction. (v) Rigorous 2PL requires all locks to be held until the transaction commits. (vi) In database recovery, the point of synchronization between the database and the log file is called checkpoint. (vii) Concurrent execution executes the transactions one after other. 	7	
	(b)	Do as directed: (i) is a mechanism to determine whether the user is valid user or not. (ii) is a phenomenon in which single transaction leads to series of transaction rollback. (iii) Give the definition of Query Optimization. (iv) Write short notes on Shadow paging. (v) Describe View Serializability, briefly.	1 1 2	
Q.2	(a) (b)	 (i) Describe the ACID properties of a Transaction, briefly. (ii) Mention any 3 types of Database Failures and describe them. (i) Describe the Shadow copy scheme for implementing Atomicity and Durability. (ii) Define Transaction. Mention the various states of a Transaction. Describe with a State Diagram. 	4 3 4	
	(b)	OR (i) Discuss the need of the concurrent execution. (ii) Mention any 3 Equivalence rules of Query Optimization. Describe briefly. 03		
Q.3	(a) (b)	Define Lock. Show Lock compatibility matrix and Explain 2PL. Define Serializability? Explain Conflict Serializability in detail. OR		
Q.3	(a) (b)	Why Database recovery is needed? Explain Deferred database modification technique with an example. Define Query Processing. Explain the steps involved in Query processing with a neat diagram.		
Q.4	(a) (b)	Define Deadlock. Explain the Deadlock prevention methods in detail. (i) Describe any 4 Threats to Database security. (ii) What do you know by Phantom phenomenon in Transaction? 03	4	

OR

Q.4	(a)	Explain how the Query processing is done in sorting. Describe using the	07
		External merge-sort algorithm.	
	(b)	(i) Describe the use of Firewalls in Database security.	04
	` /	(ii) Write short notes on cascade-less schedule.	03
Q.5	(a)	What is Distributed database? Discuss its advantages and disadvantages.	07
	(b)	Explain the Discretionary access control in database security.	07
		OR	
Q.5	(a)	Explain the Features, Advantages and Disadvantages of Object-oriented database.	07
	(b)	What is Data Encryption? Describe the various Encryption schemes used in	07
	` ′	Database security.	
