## **GUJARAT TECHNOLOGICAL UNIVERSITY** MCA - SEMESTER-II • EXAMINATION – WINTER • 2014

Subject Code: 2620003 Date: 03-12-201 Subject Name: Database Management System (DBMS)			
Time: 02:30 pm - 05:00 pm Total Marks: 70 Instructions:			
<ol> <li>Attempt all questions.</li> <li>Make suitable assumptions wherever necessary.</li> <li>Figures to the right indicate full marks.</li> </ol>			
Q.1	(a)	Explain following terms:1. DBMS2. Candidate Key3. Wound-Wait4. Functional Dependency7. Schema	07
	<b>(b)</b>	What is the purpose and Advantages of DBMS over File System?	07
Q.2	(a) (b)	What is Normalization? Explain 1NF, 2NF and 3NF with suitable example. What is ERD? Explain its Notations and Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. <b>OR</b>	07 07
	<b>(b)</b>	Explain Generalization and Specialization with suitable Example.	07
Q.3	(a) (b)	<ul><li>Draw and explain the three level architecture of DBMS.</li><li>Explain Following Relational Algebra operations with appropriate example.</li><li>1. Set Intersection Operation</li><li>2. Natural Join</li></ul>	07 07
0.2	(a)	OR What is Data Abstraction? Evaluin the difference between abusical and logical	07
Q.3	(a) (b)	<ul><li>What is Data Abstraction? Explain the difference between physical and logical data independence.</li><li>Explain Select, Project, Union and Set Difference operations in terms of Relational Algebra.</li></ul>	07 07
Q.4	(a) (b)	Define Deadlock. Discuss deadlock prevention and detection method in brief. List and explain in brief the ACID properties of transaction with example. <b>OR</b>	07 07
Q.4	(a) (b)	List and Explain Armstrong rules with its usefulness in brief. Explain Two phase locking with its advantages and disadvantages.	07 07
Q.5	(a)	Explain the difference between a weak and a strong entity set. Can we convert any weak entity set into strong entity set? If yes then How and if No then Why?	07
	(b)	Explain Deferred Database Modification and Immediate Database Modification Techniques of log based recovery systems. <b>OR</b>	07
Q.5	(a)	<ul><li>Answer the following.</li><li>1. Compare 3NF and BCNF.</li><li>2. Short note on Storage Manager.</li></ul>	07
	(b)	<ul><li>Explain in brief:</li><li>1. Serializability</li><li>2. Recoverability</li></ul>	07

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