

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-III Examination May 2012****Subject code: 130703****Subject Name: Database Management Systems****Date: 10/05/2012****Time: 02.30 pm – 05.00 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) Discuss disadvantages of file processing systems and advantages of Database Management Systems **07**
- (b) a) Differentiate the following: DA and DBA **04**
 b) Explain three level architecture of database system **03**

- Q.2** (a) a) What is joins? Explain Types of Join with Example. **04**
 b) What is Relational Algebra? Define Relational Algebra Operation cross product with example. **03**
- (b) a) What does ER model mean? Specify all its notations. **02**
 b) Construct an E-R Diagram for an insurance company with a set of customers, each of whom owns number of cars, also each can have number of recorded accident associated with it. **05**

OR

- (b) a) Explain Mapping Cardinalities. **02**
 b) Obtain E-R diagram for the Admission procedure in a university. **05**
 An advertisement is issued giving essential qualifications for the course, the last date for recipient of application, and the fee to be enclosed with the application. A clerk in the registrar's office checks the received applications to see if mark sheet and the fee are enclosed and sends valid application to the concerned academic department. The department checks the application in detail and decides the applicant to be admitted, those to be put in the waiting list, and those to be rejected. Appropriate letters are sent to the registrar's office which intimates the applicant.

- Q.3** (a) What is Functional Dependency? Explain non-loss decomposition. **07**
 (b) What is normalization? Explain 1NF, 2NF & 3NF. **07**

OR

- Q.3** (a) a) Explain irreducible sets of Functional dependency with example. **03**
 b) Explain Query Optimization Process. **04**
 (b) Why do we need normalization? Explain 4NF & 5NF. **07**

- Q.4** (a) a) Explain both the forms of serializability & relation between the two **05**
 b) What is View? Give the advantages of View. **02**
 (b) a) Explain two phase locking protocol **04**
 b) Explain log based recovery and mention all its types **03**

OR

- Q.4** (a) i) Explain the purpose of sorting with example with reference to query optimization **05**
 ii) What is NULL? Explain **02**

Q.4	(b)	a) Explain the advantages of PL/SQL	03
		b) What do you mean by security? What the objective while designing secure database?	04
Q.5	(a)	i) The employees who are getting salary greater than 3000 for those persons belonging to the department 20	07
		ii) Employees who are not getting any commission	
		iii) Find how many job titles are available in employee table.	
		iv) Display total salary spent for each job category.	
		v) Display number of employees working in each department and their department name.	
		vi) List ename whose manager is NULL.	
		vii) List all employee names and their salaries, whose salary lies between 1500/- and 3500/- both inclusive.	
	(b)	i) Explain Cursor in PL/SQL	04
		ii) Explain Database Triggers.	03
OR			
Q.5	(a)	we have following relations: EMP(empno, ename, jobtitle, managerno, hiredate, sal, comm, deptno) DEPT(deptno, dname, loc) Answer the following queries in SQL.	07
		i) Find the Employees working in the department 10, 20, 30 only.	
		ii) Find Employees whose names start with letter A or letter a.	
		iii) Find Employees along with their department name.	
		iv) Find Employees whose manager is KING.	
		v) Find the Employees who are working in Smith's department	
		vi) Find the Employees who get salary more than Allen's salary.	
		vii) Display employees who are getting maximum salary in each department	04
	(b)	i) Explain Stored Procedure in PL/SQL	
		ii) Explain Transaction Control Commands.	03
