7/6/18

Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

End Semester Examination

April – May 2018

Max. Marks: 100 **Duration: 3Hrs**

Class:S.E. **Semester:IV**

Course Code:IT43 AND CE42 **Branch:IT AND COMPUTER**

Name of the Course: Database Management systems

Instruction:

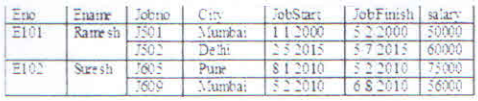
(1) All questions are compulsary

(2) Draw neat diagrams

(3) Assume suitable data if necessary

Q No.		Max. Marks	CO
Q.1 (a)	We can convert any weak entity set to a strong entity set by simply adding appropriate attributes. Why then, do we have weak entity sets? Give valid reasons.	5	CO1
(b)	What is the primary aim in specifying database constraint? With example write any four constraints which can be enforce on database.	5	CO3
(c)	Define the following terms with example. 1) Grant 2) Revoke 3) Commit 4) Rollback 5) Savepoint	5	CO3
(d)	With an example explain Boyce-Codd Normal Form.	5	CO4
Q.2 (a)	How to perform programming with SQL? What are stored Procedures (or PL/SQL in Oracle). What are its advantages over SQL. Give any one appropriate program as an example OR What is mean by virtual relation? Define an SQL query to create virtual relation. Discuss the problems that may arise while updating a view.	10	CO3
Q.2 (b)	Draw overall system structure of a database, clearly showing following components - a)Query Processor with its subcomponents b)Storage Manager with its subcomponents c) All four major types of users acting as an end user i) Give the functionality of any two sub-blocks from each components a, b as above. ii)Write about any 2 users OR Write any ten CODD'S rules for a fully relational DBMS.	4 4 2 10	CO1

Q.3(a)	Consider the following database schema Product (pid, pname, supplierid, unit, price) Supplier (Sid,sname,city,country) Orderdetails (Orderdeatilsid,Orderid,pid,Quantity) Solved the following nested query in SQL. i)Find the product names whose order is not placed. ii)Lists the product names if it finds any records in the OrderDetails table that quantity = 10. iii)Lists the product names if all the records in the OrderDetails table has quantity greater than 30. iv)Selects all products with a price BETWEEN 40 and 50. v)Lists the number of supplier in each country, sorted high to low	10	CO2
Q.3(b)	Draw the Entity-Relationship diagram for the following database application. The COMPANY database keeps track of a company's employees, departments, and projects. Suppose that after the requirements collection and analysis phase, the database designers provide the following description, use the same for showing your ER representation: •The company is organized into departments. Each department has a unique name, a unique number, and a particular employee who manages the department. Departments may have several locations. •A department controls a number of projects, each of which has a unique name, a unique number and a single location. •Database keeps each employee's name, social security number, address, salary, sex and birth date. An employee is assigned to one department, but may work on several projects, which are not necessarily controlled by the same department. Database keeps track of the number of hours per week that an employee works on each project. It also keeps track of the direct supervisor of each employee. •It also want to keep track of the dependents of each employee for insurance purposes. It keeps each dependent's first name, sex, birth date and relationship to the employee.	10	CO1
Q.4(a)	What is the purpose of trigger in SQL? What are the different types of triggers? Create two Simple Triggers- using before Insert and after Delete Operations on the Table. **OR** What do you mean by database security? What are the different threads to database? What are four main control measures that are use to provide security of data in databases?	2 3 5 10	CO3

Q.4(b)	Why Normalization required? Define First, Second And Third Normal Form. Show the Conversion of following employee database Upto Third normal form. Employee(eno,ename,Jobno,city,Jobstartdate,JobFinishdate, salary)  **OR** Consider relation R= (P,Q,R,S,T,U,V,W) having set of FD's $RW \rightarrow V$ $P \rightarrow QR$ $Q \rightarrow RUW$ $T \rightarrow P$ $U \rightarrow TV$ i)Find all the candidate Key's. ii) Prove or disprove the following inference rules for Functional dependencies a)$(A \rightarrow B, P \rightarrow Q) \Rightarrow AP \rightarrow B$ b) $(A \rightarrow B, B \rightarrow C) \Rightarrow A \rightarrow BC$ C)$(A \rightarrow C, B \rightarrow C) \Rightarrow A \rightarrow B$	1 3 6 4 6	CO4
Q.5(a)	What do you mean by serializability schedule? How would you test whether a given schedule S is conflict serializable?	10	CO5
Q.5(b)	With the help of example describe the process of deadlock detection and recovery?	10	CO5

Eno	Ename	Jobno	City	JobStart	JobFinish	salary
E101	Ramesh	J501	Mumbai	1 1 2000	5 2 2000	50000
		J502	Delhi	2 5 2015	5 7 2015	60000
E102	Suresh	J605	Pune	8 1 2010	5 2 2010	75000
		J609	Mumbai	5 2 2010	6 8 2010	56000