UKA TARSADIA UNIVERSITY

BCA/Integrated M.Sc.(IT)- 1st Semester Examination- June 2012

030010102/060010102:Database Management System

Time:3 Hrs. Max. Marks: 70

Instructions:
1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.
5. Draw diagrams/figures whenever necessary.

Section-I

Q-1 (A) Do as directed: [07]

I) What do you mean by Multivalued and Derived attribute?
II) What do you mean by Alternate key?
III) What do you mean by relationship set?
IV) Define the term attribute Inheritance.
V) What do you mean by Schema and Instance?
VI) What do you mean by Data Manager?
VII) Define the term: DDL, DML.

Q-1 (B) Answer the following in brief: (Any 4) [08]

I) What do you mean by database users? List the duties of DBA.
II) Compare Conventional file system with Database Management System.
III) What do you mean by integrity constraint? Explain with example.
IV) Explain Mapping Cardinalities.
V) Compare binary relationship set with ternary relationship set.
VI) Explain data independence in brief.

Q-2 Answer the following: [10]

A) Explain the architecture of DBMS in detail.

OR

A) What do you mean by database languages? List all the database languages. Compare DDL and DML.

B) Write a note on Weak-entity set. Explain it with example.

OR

B) What do you mean by data model? List different types of data model. Explain Relational model.

Q-3 Answer the following in detail. (Any 2) [10]

A) What do you mean by attributes? Explain different attributes in detail.
B) What do you mean by Key? Explain different types of keys in detail.
C) Construct an E-R diagram for car insurance company that has a set of customers, each of the customers owns one or more car. Each car has faced zero or any no of accidents.

Section-II

Q-4 (A) Do as directed: [07]

I) Up to how many bytes does Char data allows you to store in DB2?

II) What does VDL stands for?

III) Write a DML statement to display length of name of each Doctor from table Doctor(DoctorName,City,Age).

IV) Write basic form of Augmentation Inference rule.

V) Write a statement to delete the table Patient(Pid,Pname).

VI) List any 2 logical operators.

VII) Write a DDL Statement to add a column ECity in relation Emp(Eid,Ename).

Q-4 (B) Answer the following in brief: (Any 4) [08]

I) Let R(A,B,C) and F={A->B}. If the table is decomposed into two relations R1(A,B) and R2(A,C) then specify whether the decomposition is lossy or lossless. Identify Key. Justify your answer.

II) Write a DDL statement to create Doctor(DID,Dname,City,Salary) with proper constraints like DID should be primary key and no Salary less than 0 should be allowed.

III) Define Second Normal Form.

IV) Create a table Emp(Eid,Ename,City) with identity column Eid.

V) What is use of BETWEEN operator? Explain with example.

VI) Differentiate Trivial and Non-trivial Functional dependency.

Q-5 Answer the following:

A) Consider the relation [5]
Emp_Proj(Emp_ID,Pno,Esal,Ephone,Dno,Pname,Plocation,PCompletionDt)
Functional dependencies of Emp_Proj are:
Fd1: Emp_ID->Esal,EphoneNo,Dno
Fd2:Pno->Pname,Plocation
Fd3:Emp_ID,Pno->PCompletionDate
An employee can work on multiple projects

1. Identify Candidate Key
2. Identify whether the relation is in 2NF or not. If no then decompose it to 2NF
3. Further Identify whether the relation is in 3NF or not. If no then decompose it to 3NF

OR

A) Consider a given relation Emp(Ename,Pname,Dname). [5]
Ename is name of employee.
Pname is name of project. An employee can work on multiple projects.
Dname is name of dependent. An employee can have more than one dependent.

1. Identify Candidate Key.
2. Decompose given relation till 4NF.

B) Consider the following relation and solve queries
SalesPerson(SPNum,SPName,Commission%,YearHire,OffNum)
Customer(CustNum,CustName,SPNum,City)
Sales(SPnum,ProdNum,Quantity)

1. Display name of customers in upper case who lives in Surat. [1]
2. Find the name of salesperson who sold product to Customer Number 1234. [2]

3. Display CustNum and CustName of Customer whose name begins with A and ends with R. [2]

OR

B) Consider the above given relation and solve following queries.

1. Update name of Customer to Ramesh whose CustomerNumber is 111. [1]
2. Find the SPnum and total number of units of all products sold by each salesperson. [2]
3. Display name of SalesPerson who has served customers living in Delhi. [2]

Q-6 Answer the following in detail. (Any 2) [10]

A) List any 5 codd's rules. Explain each of them

B) Define Sequence. Explain it using example. Write various options available with Sequence.

C) List any 5 Aggregate functions. Explain each of them with example.