Code: DC62   **Subject: DATABASE MANAGEMENT S____**

DipIETE – CS

Time: 3 Hours   **JUNE 2013**   **Max. Marks: 1__**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   **Choose the correct or the best alternative in the following:**   **(2×10)**

   a. Unnecessary duplication of data in the database is called

   (A) Data Model   **(B)** Data Redundancy
   (C) Data Control   **(D)** Data Independence

   b. Method of representating data and relationships between data is called

   (A) Database security   **(B)** Data Model
   (C) Data Control   **(D)** Shared Data

   c. Which property is false in any given relationship?

   (A) There are no duplicate Tuples
   (B) Tuples are unordered
   (C) Attributes are unordered
   (D) All attribute values are not atomic

   d. Components of SQL are

   (A) DDL & DML   **(B)** DML & DCL
   (C) DDL, DML & DCL   **(D)** DDL & DCL

   e. Which statement is not true?

   (A) Data are raw facts
   (B) Information is processed data
   (C) Schema is a description of Users
   (D) Network model is symmetric than Hierarchical structure

   f. In a E-R diagram, ellipses represent

   (A) entity sets   **(B)** relationship among entity sets
   (C) attributes   **(D)** link between attributes & entity sets

g. How can an Entity be simplified?

(A) By using shorter codes   **(B)** By dividing into smaller entities
(C) By including it in a larger entity **(D)** By using a file system

h. Normalization usually takes place at the _____ stage of database life cycle.

(A) Analysis   **(B)** Design
(C) Execution   **(D)** Updation

i. With partial completeness, an instance of the _____ does not have to belong to a _____.

(A) Subtype, Supertype   **(B)** Candidate key, Foreign key
(C) Supertype, Subtype   **(D)** Primary key, Candidate key

j. In a ternary relationship 'n' is equal to _____.

(A) One   **(B)** Two
(C) Three   **(D)** Four

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2   a. Explain the differences between conceptual & external schema.   **(5)**

b. Describe the four components of a database system.   **(6)**

c. What are the characteristics of database?   **(5)**

Q.3   a. Explain about primary key, super key, candidate key, alternate key using suitable example.   **(8)**

b. Explain Data definition SQL commands. Give syntax and suitable example.   **(8)**

Q.4   a. What are the difference between functional and multivalued dependencies? **(8)**

b. Write notes on the following using suitable example:
(i)   Fourth normal form and its usefulness
(ii) Lossless join decomposition into 4 NF relations   **(8)**

Q.5   a. Specify about the notations used in Entity – Relationship diagrams in DBMS design.   **(8)**

b. Define Relational algebra. Discuss traditional set operations on relations.   **(8)**

Q.6   a. What is a view in SQL and how it is defined? Discuss the problems that may arise when one attempts to update a view.   **(8)**

b. Discuss Codd's rule for relational database to see how relational it is. Enumer
at least six rules of Codd.   **(8)**

Q.7 a. Describe Heuristics rules used in Query optimization.   **(8)**

b. What is Normalization? How it play a major role in designing of RDBMS? **(8)**

Q.8 a. Explain the differences between 2NF and 3NF with reference to their
definitions. Give suitable example.   **(8)**

b. With the help of diagram, explain the different steps for processing a high-
level query.   **(8)**

Q.9 a. What do you understand by the term INDEX? Discuss various types of
Indexes used for record tables.   **(8)**

b. What is B-tree? What is its advantages for dynamic multiple indexing? **(8)**