ROLL NO. _____

**Code: DC62** **Subject: DATABASE MANAGEMENT SYSTEMS**

# DipIETE – CS

**Time: 3 Hours** **JUNE 2013** **Max. Marks: 100**

***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. Enumerate 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)**