

DiplETE – CS

Time: 3 Hours

DECEMBER 2012





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)

- Which of the following is not true of the traditional approach to information processing?
 - there is common sharing of data among the various applications
 - it is file oriented
 - programs are dependent on the file
 - it is inflexible
- Which of the following hardware component is the most important to the operation of database management system?
 - high resolution video display
 - printer
 - high speed, large capacity disk
 - plotter
- Which of the following is not an advantage of the database approach?
 - Elimination of data redundancy
 - program/data independence
 - increased security
 - All of these
- Derived attributes in ER-diagrams are represented by
 - 
 - 
 - 
 - 
- A database is a collection of
 - fields
 - records
 - relations
 - sectors

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

- f. Which of the following is not a relational algebra operation?
- (A) Update (B) Division
(C) Join (D) Project
- g. _____ are used to store indices
- (A) records (B) ER diagrams
(C) B⁺ trees (D) CASE tools
- h. Which of the following are a type of end users of the database
- (A) Database Designers (B) DBA
(C) Naive (D) Software Engineers
- i. If a piece of data is stored in two places in the database, then
- (A) it results in redundancy
(B) changing the data in one spot will cause data inconsistency
(C) can be more easily accessed
(D) both (A) and (B)
- j. A command in SQL that lets you delete one or more records in a record is
- (A) drop (B) update
(C) delete (D) none of these

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

- Q.2** a. What is Database Management System? What are the advantages of using database approach? (8)
- b. Describe the three-schema architecture. What is data independence? Explain.(8)
- Q.3** a. Illustrate and explain the main phases of database design. (8)
- b. What are Weak entity types? Explain with the help of examples. (8)
- Q.4** a. Explain relational database design using ER – to - Relational Mapping. (8)
- b. Explain join and division operations. (4+4)

Code: DC62**Subject: DATABASE MANAGEMENT**

- Q.5** a. Discuss the following SQL commands with example:- (8)
- (i) Update
 - (ii) Drop View
 - (iii) Insert
 - (iv) Alter Table
- b. Consider the following COMPANY database (keys are underlined)
- EMPLOYEE (Ename, SSn, Birthdate, Address, Salary, Super- SSn, Dno)
DEPARTMENT (Dname, Dno, Mgr-SSn)
- Write the SQL queries for the following statements:-
- (i) Retrieve the birthdate and address of the employees whose name is 'Rahul'.
 - (ii) Retrieve the name and address of all employees who work for the 'engineering' department. (8)
- Q.6** a. Explain second and third normal forms with the help of suitable examples. (8)
- b. What do you mean by functional dependencies? Explain. (8)
- Q.7** a. Explain fourth normal form. (8)
- b. Explain Nonadditive (Lossless) join property of a decomposition. (8)
- Q.8** a. Discuss the basic operations on files. (8)
- b. Explain the types of single-level ordered indexes. (8)
- Q.9** a. How to translate SQL queries into relational algebra? (8)
- b. What are the aggregate operations and how they can be implemented? (8)