

TCS/TIT-404

419

Even Semester Examination - 2017

B.TECH. (IV SEMESTER)

DATABASE MANAGEMENT SYSTEM

Time: 03:00 Hours

Max Marks : 100

Note: Attempt **all** questions, each question carry **equal** marks.

Q1. Attempt any four parts of the following: (5X4=20)

- (a) Discuss overall system structure of database management system.
- (b) What is DBA? List all functions of database administrator.
- (c) Write differences between Logical and physical data independence.
- (d) What do you mean by aggregation and database schema?
- (e) Explain the Foreign Key with suitable example.

Q2. Attempt any four parts of the following: (5X4=20)

- (a) Discuss the following operations with suitable example: i. Selection ii. Projection
- (b) What is the significance of ER Diagram?
- (c) Discuss about immediate database modification scheme of recovery.
- (d) What do you mean by distributed database?
- (e) What do you mean by query processing?

Q3. Attempt any two parts of the following: (10X2=20)

- (a) Construct an ER Diagram for a hospital with a set of patients and a set of doctors. Associate with each patient a log of the various tests and examination conducted. Also show the tables for various entities with attributes.
- (b) Consider the relational database given below. Where the primary keys are underline. Give an expression in the relational algebra to express each the following queries.

employee (person_name, street, city)

works (person_name, company_name, salary)

company (company_name, city)

Manager (person_name, manager_name)

- (I) Find name of all employees who works for first Bank Corporation.
- (II) Find the names, street address & cities of residence of all employees who works for first Bank Corporation and earn more than \$10,000 per annum.
- (C) Discuss the various issues of query optimization in detail.

Q4. Attempt any two parts of the following: (10X2=20)

- (a) What do you mean by normalization? Why it is required. List various normalization techniques.
- (b) Illustrate BCNF with a suitable example. How BCNF is better than 3NF? Justify your answer.
- (c) Discuss the ACID properties of transaction. Illustrate transaction state also.

Q.5 Attempt any two parts of the following: (10X2=20)

- (a) Discuss View Serializability and conflict Serializability .
- (b) Write a note on- (I) Relational Algebra (II) Relational Calculus
- (c) What is concurrency control? How it is implemented in DBMS. Illustrate with suitable example.
