

**III B.Tech I Semester Supplementary Examinations, October/November - 2019**  
**DATABASE MANAGEMENT SYSTEMS**

(Common to Computer Science and Engineering, Information Technology)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answering the question in **Part-A** is compulsory  
 3. Answer any **THREE** Questions from **Part-B**

**PART -A**

(22 Marks)

- 1 a) What are the different levels of abstraction? [3M]
- b) Explain Natural Join With Example. [4M]
- c) What are the semantic constraints in SQL? [3M]
- d) Given a set of FDs for the relation schema R(A,B,C,D) with Primary key AB, and  $D \rightarrow C$  or  $C \rightarrow D$  or  $AC \rightarrow D$  or  $AD \rightarrow C$  or  $BC \rightarrow D$  or  $BD \rightarrow C$ . In which normal form is R? [4M]
- e) What are the properties of transactions? [4M]
- f) What is hash based index? [4M]

**PART -B**

(48 Marks)

- 2 a) Define Schema. Explain three level architecture in DBMS. [8M]
- b) Explain Data Independence and its types in detail. [8M]
- 3 a) Explain: (i) Database (ii) Meta data (iii) Data Dictionary (iv) user constraints table (v) check constraint. [10M]
- b) What is Redundancy? Explain the anomalies in relational database. [6M]
- 4 Write SQL statements for following: [16M]  
 Student( Enrno, name, courseId, emailId, cellno)  
 Course(courseId, course\_nm, duration)  
 i) Add a column city in student table.  
 ii) Find out list of students who have enrolled in "computer" course.  
 iii) List name of all courses with their duration.  
 iv) List name of all students start with 'a'.  
 v) List email Id and cell no of all mechanical engineering students.
- 5 a) What is functional dependency? Explain its use in database design. [8M]
- b) Normalize following relation up to 3NF: [8M]  
 Bank(acno, cust\_name, ac\_type, bal, int\_rate, cust\_city, branchId, branch\_nm, br\_city)
- 6 a) What is need of lock in DBMS? Explain shared lock and exclusive lock with the help of example. [8M]
- b) What is database Recovery? Explain Shadow paging in detail. [8M]
- 7 Discuss how multi level indexes are constructed using B trees and B+ trees? Explain. [16M]

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