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## TCS-402/TIT-402

**B. Tech. (CS/IT) (Fourth Semester)**  
**End Semester EXAMINATION, 2017**

**DATABASE MANAGEMENT SYSTEM**

*Time : Three Hours ]*

*[ Maximum Marks : 100*

**Note :** (i) This question paper contains *five* questions.

(ii) All questions are compulsory.

(iii) Instructions on how to attempt a question are mention against it.

(iv) Total marks assigned to each question are **twenty**.

1. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)

(a) What are Codd's Rules in RDBMS ? Explain them.

(b) Define 2NF (Second Normal Form). Explain with example.

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- (c) What is an ER Diagram ? Draw an ER Diagram for any University. Make assumptions. Convert it into set of tables.
2. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) What is a Join ? Explain different types of joins using SQL examples.
- (b) Explain various components that makes up a typical DBMS using diagram.
- (c) What is 4NF (Fourth Normal Form) Explain using example.
3. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) Define DBMS and RDBMS. Explain various advantages of DBMS.
- (b) What are DML Commands. Explain all using examples.
- (c) What is a sub-query ? When is it used ? Explain using example.
4. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) List and explain various types of SQL Keys using examples.
- (b) Write SQL queries for the given requirements based on following tables :

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Student(Rollno, Name, City)

(Assume table values)

Course(CCode, CName, Fees)

Register(Roll no, CC ode)

Write SQL queries for following requirement :

- Creation of above tables along with constraints.
  - Names of all courses having fees more than 55000/- (Thirty five thousand).
  - Display Names of students who are from "Delhi".
  - Course Codes in which no student has taken admission.
  - Details of students along with course details in which they have taken admission.
- (c) What are DDL Commands ? Explain using examples.
5. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) What is database transaction ? Discuss ACID properties and states of a transaction.
- (b) What is transaction concurrency ? Discuss its related problems.
- (c) What is transaction failure ? Explain various reasons of failure ? How can we handle it ?

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