SUBJECT CODE:- 289
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination Nov/Dec 2015
Database Management System
(Revised)

[Time: Three Hours]   **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B   i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
      ii) Solve any two questions from each section A & B from remaining queries.

Section A

Q.1	Attempt any five questions.	10

    i) Discuss the advantages and disadvantages of DBMS.
    ii) Describe what a super class and a sub class represents? How they are related to each other?
    iii) What are the main components of entity relationship example?
    iv) What is meant by attribute? Explain the types with example.
    v) Discuss the properties of relation.
    vi) What is difference between logical and physical data independence?
    vii) Explain the distinction between total and partial participation constraint.
    viii) What do you understand by the term data abstraction?

Q.2   a) Define and discuss the role of data administrator in detail.   07
     b) Explain how following ER diagram constructs are mapped to relational database. 08
      i) Strong entity types
      ii) Binary I:N relationship
      iii) Binary M:N relationship

Q.3   a) Explain the concept of aggregation. Give examples where this concept is useful. 07
     b) What do you mean by data models? Explain relational model in detail. 08

Q.4   a) Discuss the entity integrity and referential integrity constrains? Why is each considered important? 08
     b) Explain the three schema architecture. Why do we need mapping between schema levels? 07

Q.5   a) Construct E-R diagram for college administration. 08
      - Identity attribute, entities and relations
      - Identity primary and foreign keys
      - Specify constraints
     b) Justify the following statement: 07
      i) Relation must have a key
      Ii) Handling null values is difficult

Section-B

Q.6 Attempt any five questions.   10
    i) What is decomposition? Give suitable example.
    ii) Define conflict serializability.
    iii) Define union, intersection and minus operations in relational algebra.
    iv) List out different types of join.
    v) Define lock, shared lock & exclusive lock.
    vi) Define multivalued dependency.
    vii) What is second normal form?
    viii) What is difference between Delete and Truncate command?

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Q.7   a) Consider following relational schema to keep track of business trip of sales person in the sales office. 08
            Sales-person (SSN, name, start year, dept no)
            TRIP (SSN, from, to, departure date, return date, trip-id)
             Expense (trip-id, account, amount)
        Write following queries using relational algebra.
         i) Give details of sales person who have joined in 2015.
         ii) Give details of all the trip starting from Mumbai and ending at Delhi.
         iii) Print SSN of sales person who took trip to Mumbai.
          iv) Give the details for trip that exceeded Rs.5000 in expenses.
     b) What is a deadlock? Explain deadlock detection.   07

Q.8   a) What is functional dependency? Describe second normal form in detail.   07
       b) What is time stamp based protocol? Explain in detail.   08

Q.9   a) With suitable diagram explain transaction state.   07
       b) Consider the following schema.   08
            Employee (person-name, street, city)
            Works (person-name , company –name, salary)
            Company (company-name, city)
            Manages (person-name, manager-name)
        Write following queries using SQL.
            i) Find names of all employers who work for Wipro.
            ii) Find name and cities of residence of all employees who work for Wipro.
            iii) Find the name of all employees who live in the same city as the company for which they work.

Q.10   a) What is backup recovery? Explain techniques of backup recovery.   07
       b) Define join dependency. Explain fifth normal form.   08

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