Code No: CT1512   **GEC-R14**
II B. Tech II Semester Supplementary Examinations, June 2017
DATABASE MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 Hours   **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
    Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. a) Aggregation is represented by the symbol

   A) Oval   B) Square

   C) Diamond   D) Dashed Box

   b) For a weak entity set to be meaningful, it must be associated with another
      entity set in combination with some of their attribute values, is called as :

   A) Neighbour Set   B) Strong Entity Set

   C) Owner entity set   D) Friend Set

2. List out different Relational Algebra Operators.

3. If a relation with a Schema R is decomposed into two relations R1 and R2
   such that (R1 ∪ R2) = R1 then which one of the following is to be satisfied for
   a lossless join decomposition (→ indicates functional dependency)

   A) (R1 ∩ R2) → R1 or (R1 ∩ R2) → R2 B) (R1 ∩ R2) → R1
   C) (R1 ∩ R2) → R2   D) (R1 ∩ R2) → R1 and (R1 ∩ R2) → R2

4. Give an example for an irrecoverable schedule.

5. What is dirty read?

6. Define Dense Index.

PART-B

4 × 12 = 48M

1. Explain the Architecture of DBMS with a neat diagram.   (12M)

2. Write the SQL expressions for the following relational database.
   Sailor (Sailor id, Boat id, Sailor name, Rating, Age)   (12M)
   Reserves (Sailor id, Boat id, Day)
   Boat (Boat id, Boat name, Color)
   i)   Find the age of the youngest sailor for each rating level.
   ii) Find the No. of reservations for each red boat.
   iii) Find the name of sailors who reserves boat no 103.

3. a) Illustrate 4NF with an example. (6M)

   b) Explain functional dependencies with example. (6M)

4. a) What is a precedence graph? Explain how it is used to test whether a schedule is conflict serializable. (6M)

   b) Give a schedule that is view serializable but not conflict serializable. In what way view serializability is different from conflict serializability? (6M)

5. a) Explain the anomalies due to concurrent execution. (6M)

   b) What is 2-phase locking protocol? How it guarantees serializability? (6M)

6. a) Explain check pointing mechanism for database recovery. (6M)

   b) Explain B+ tree indexing with an example. (6M)

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