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Total No. of Pages : 02

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# B.Tech.(Automation & Robotics) (DE-I 2011 & Onward)/ (ECE)/(ETE) (E-I 2011 Onwards) (Sem.-6) RELATIONAL DATA BASE MANAGEMENT SYSTEM Subject Code : BTEC-901 Paper ID : [A2319]

Time: 3 Hrs.

Max. Marks : 60

## **INSTRUCTION TO CANDIDATES :**

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

## **SECTION-A**

### 1. Answer briefly :

- a) What undesirable dependencies are avoided when a relation is in 2NF?
- b) List the features of database approach which distinguish it from traditional file system.
- c) List the types of privileges available in SQL.
- d) What risks are associated with SQL injection attacks?
- e) What is the difference between a key and a superkey?
- f) What is the role of Bell-La-Padula model?
- g) What are the components of a disk block address?
- h) What is a predicate lock?
- i) What is meant by schema?
- j) Define aggregation and association with respect to Enhanced Entity-Relationship (EER) Model.



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## **SECTION-B**

- 2. What is the difference between logical data independence and physical data independence? Which one is harder to achieve? Justify.
- 3. What are digital signatures? Illustrate its working with the help of suitable example.
- 4. Define Boyce-Codd normal form. How does it differ from 3NF? Why is it considered a stronger form of 3NF?
- 5. Discuss the different ways by which a join operation can be modeled using SQL.
- 6. Describe the wait-die and wound-wait protocols for deadlock prevention.

## **SECTION-C**

- 7. Describe the six clauses in the syntax of an SQL retrieval query. Show what type of constructs can be specified in each of the six clauses. Which of the six clauses are required and which are optional?
- 8. How do optimistic concurrency control techniques differ from other concurrency control techniques? Why are they also called validation or certification techniques? Discuss the typical phases of an optimistic concurrency control method.
- 9. Write short notes on :
  - a) Sparse Index.
  - b) Lost Update Problem.