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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (CSE) (2011 Onwards) (Sem.-5)

RELATIONAL DATABASE MANAGEMENT SYSTEM – I

Subject Code : BTCS-502

Paper ID : [A2098]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

I. Write briefly :

- a. Define file.
- b. Why do we need mappings between different schema levels?
- c. What is indexing?
- d. What do you mean by data model?
- e. What do you understand by the term normalization?
- f. Define Boyce-Codd normal form (BCNF).
- g. What do you mean by atomicity?
- h. Define lost update problem.
- i. What is data encryption?
- j. What is digital signature?

SECTION-B

2. Outline the advantages of implementing database management system in an organization.
3. Explain the difference between primary versus secondary indexes.
4. How does the hierarchical data model address the problem of data redundancy? Explain.
5. What do you mean by functional dependency? Explain with an example and a functional dependency diagram.
6. What is locking? What are the different types of locks? Explain.

SECTION-C

7. An entity type STUDENT has the attributes such as name, address, phone, activity, number of years and age. Activity represents some campus based student activity, while number of years represents the number of years the student has engaged in these activities. A given student may engage in more than one activity. Draw an E-R diagram for this situation.
8. Assume that a database system has the following relation :
STUDENT(NAME, ROLL-NO, ADDRESS, MAIN)
ADMISSION(ROLL-NO,COURSE,SEMESTER)
FACULTY(COURSE, FACULTY, SEMESTER)
OFFERINGS(BRANCH, COURSES)
Use relational algebra, derive relations to obtain the following information.
 - a. All courses taken by a given student.
 - b. Students who have taken all courses offered by a given faculty.
 - c. The names of students admitted in a particular course in a given semester.
 - d. All faculties that at some time taught a given student.
9. What do you mean by firewall? What are the firewall techniques that are used in database Security? Discuss in brief.