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Total No. of Questions : 18

B.Tech. (CSE) (2012 to 2017)   (Sem.–5)
RELATIONAL DATABASE MANAGEMENT SYSTEM–I
Subject Code : BTCS-502
M.Code : 70535

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

Answer briefly :

1) Define Data Independence and its types.

2) Define and explain clustered index.

3) Define Referential Integrity constraints.

4) Explain Multi valued Functional Dependency.

5) What is Deadlock during concurrent processing?

6) Explain Variable Length Records and uses.

7) Explain different joins.

8) Explain two phase commit protocol.

9) What are ACID properties for transactions?

10) Explain digital signature.

SECTION-B

11) Compare file system and data base management systems.

12) Explain the different operations in Relational Algebra with the help of an example.

13) Why is the concurrency control needed? Discuss with examples.

14) What is the use of E-R model? Draw E-R diagram for student information system, student, subject, and course are three entities, consider suitable attributes, cardinalities, and degrees of the relationships in the E-R model.

15) Discuss how serializability is used to enforce concurrency control in a database system? Why is serializability considered too restrictive as a measure of correctness for schedules?

SECTION-C

16) Consider the following relational database :

   employee(employee-name, street, city)

   works(employee-name, company-name, salary)

   company(company-name, city)

   manages(employee-name, manager-name)

   Give an expression in SQL for each of the following queries :

   a. Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than Rs.10,000.

   b. Find the names of all employees in the database who live in the same cities as the companies for which they work.

   c. Find the names of all employees in the database who live in the same cities and on the what different techniques are used for data encryption in Cloud Computing? Explain in detail.

17) Discuss insertion, deletion, and modification anomalies. Why are they considered bad? Illustrate with examples?

18) What is the difference between discretionary and mandatory access control? Explain with an example.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.