

Paper Id:

110501

Roll No:

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B.TECH.
(SEM-V) THEORY EXAMINATION 2019-20
DATA BASE MANAGEMENT SYSTEM

Time: 3 Hours**Total Marks: 70****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

1. **Attempt all questions in brief.** **2 x 7 = 14**
- a. What is Relational Algebra?
 - b. Explain normalization. What is normal form?
 - c. What do you mean by Aggregation?
 - d. Define Super key, Candidate key, Primary key & foreign key
 - e. What is Strong & Weak Entity set?
 - f. What do you mean by Conflict Serializable Schedule?
 - g. Define Concurrency Control.

SECTION B

2. **Attempt any three of the following:** **7 x 3 = 21**
- a. Explain data independence with its types.
 - b. Describe mapping constraints with its types.
 - c. Define Key. Explain various types of keys.
 - d. Explain the phantom phenomena. Discuss a Time Stamp Protocol that avoids the phantom phenomena.
 - e. What are Distributed Database? List advantage and disadvantage of data Replication And data Fragmentation.

SECTION C

3. **Attempt any one part of the following:** **7 x 1 = 7**
- (a) Define Join. Explain different types of join.
 - (b) Discuss the following terms (i) DDL Command (ii) DML command
4. **Attempt any onepart of the following:** **7 x 1 = 7**
- (a) What is tuple relational calculus and domain relational calculus?
 - (b) Describe the following terms : (i) Multivalued dependency (ii) Trigger
5. **Attempt any one part of the following:** **7 x 1 = 7**
- (a) What do you understand by ACID properties of transaction ? Explain in details.
 - (b) Discuss about deadlock prevention schemes.
6. **Attempt any one part of the following:** **7 x 1 = 7**
- (a) Explain Concurrency Control. Why it is needed in database system?
 - (b) Give the following queries in the relational algebra using the relational schema:
student(id, name)
enrolled(id, code)
subject(code, lecturer)
 - i). What are the names of students enrolled in cs3020?
 - ii). Which subjects is Hector taking?
 - iii). Who teaches cs1500?
 - iv). Who teaches cs1500 or cs3020?
 - v). Who teaches at least two different subjects?
 - vi). What are the names of students in cs1500 or cs307?
 - vii). What are the names of students in both cs1500 and cs1200?

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7. Attempt any *one* part of the following:

7 x 1 = 7

- (a) Explain Directory System in detail.
- (b) Consider the following relational DATABASE. Give an expression in SQL for each following queries Underline records are Primary Key

Employee(person_name, street, city)Works(person_name, Company_name, salary)Company(Company_name, city)Manages(person_name, manager_name)

- i). Finds the names of all employees who works for the ABC bank
- ii). Finds the name of all employees who live in the same city and on the same street as do their managers
- iii). Find the name street address and cities of residence of all employees who work for ABC bank and earn more than 7,000 per annum
- iv). Find the name of all employee who earn more than every employee of XYZ
- v). Give all Employees of corporation ABC a 7% salary raise .
- vi). Delete all tuples in the works relation for employees of ABC
- vii). Find the name of all employees in this DATABASE who live in the same city as the company for which they work