

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
- What is Relational Algebra?
 - Explain normalization. What is normal form?
 - What do you mean by Aggregation?
 - Define Super key, Candidate key, Primary key & foreign key
 - What is Strong & Weak Entity set?
 - What do you mean by Conflict Serializable Schedule?
 - Define Concurrency Control.



SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21
- Explain data independence with its types.
 - Describe mapping constraints with its types.
 - Define Key. Explain various types of keys.
 - Explain the phantom phenomena. Discuss a Time Stamp Protocol that avoids the phantom phenomena.
 - 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
- Define Join. Explain different types of join.
 - Discuss the following terms (i) DDL Command (ii) DML command
4. Attempt any *one* part of the following: 7 x 1 = 7
- What is tuple relational calculus and domain relational calculus?
 - Describe the following terms : (i) Multivalued dependency (ii) Trigger
5. Attempt any *one* part of the following: 7 x 1 = 7
- What do you understand by ACID properties of transaction? Explain in details.
 - Discuss about deadlock prevention schemes.
6. Attempt any *one* part of the following: 7 x 1 = 7
- Explain Concurrency Control. Why it is needed in database system?
 - Give the following queries in the relational algebra using the relational schema:
student(id, name)
enrolled(id, code)
subject(code, lecturer)
 - What are the names of students enrolled in cs3020?
 - Which subjects is Hector taking?
 - Who teaches cs1500?
 - Who teaches cs1500 or cs3020?
 - Who teaches at least two different subjects?
 - What are the names of students in cs1500 or cs307?
 - 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

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