Program/ Course: **B.Tech. (Sem.-4th)**
DATABASE MANAGEMENT SYSTEM
Subject Code: IT-14401
Paper ID:15333

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) **Section-A** is **compulsory**
2) Attempt any **four** questions from **Section-B** and any **two** questions from **Section-C**
3) Any missing data may be assumed appropriately

Section – A

Q1. [Marks: 02 each]

a) Give syntax of table Creation and Insertion commands in SQL.
b) What are the advantages of Data Warehouse?
c) Define big table clones.
d) Differentiate between Natural join and Outer join.
e) What is dense indexing?
f) Define shadow paging with suitable example.
g) What are various types of database users and data administrators?
h) What is two phase locking protocol? How is it implemented?
i) Explain atomicity of a transaction.
j) State the anomalies of 3NF.

Section – B

[Marks: 05 each]

Q2. Consider the following employee database, where the primary keys are underlined.
Employee (<u>person_name</u>, street, city)
Works (<u>person_name</u>, company_name, salary)
Company (<u>company_name</u> , city)
Managers (<u>person_name</u>, manager_name) .
Give an expression in SQL for each of the following queries.

(i) Find the names of all employees who work for First Bank Corporation.
(ii) Find the names, street addresses and cities of residences of all employees who work for First Bank Corporation and earn more than $10000.
(iii) Find all employees who do not work for First Bank Corporation.
(iv) Find the names of all employees who earn more than every employee of small bank corporation.
(v) Find all employees in the database who do not live in the same cities and on the same streets as their managers

Q3. Discuss the three level architecture of database system.

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Q4. What is meant by transaction rollback? Which of the recovery techniques do not require any rollback?

Q5. What are the advantages of normalized relations over unnormalized relations? Why is 4NF preferable to BCNF?

Q6. Write a short note on:
(a) Concurrent Transactions
(b) Decision Support System
(c) Triggers
(d) Sequential files
(e) ER diagrams

Section – C   [Marks: 10 each (05 for each sub-part, if any)]

Q7. Explain the conflict and view serializable schedule in details and also check whether the given schedule is conflict serializable or not?
a) SB: r1(Q), W2(Q), r1(Q)
b) SC: r1(Q), W2(Q), W1(Q), W3(Q)

Q8. What is data mining? Describe the Architecture of a typical data mining system and its major Components? Also list out Data mining tasks?

Q9. Define the term NOSQL? What are the advantages and disadvantages of NOSQL? Explain why NOSQL database is used by facebook, google and linkedIn applications.

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