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Roll No

CS-5003 (CBGS)**B.E. V Semester**

Examination, December 2017

Choice Based Grading System (CBGS)**Data Base Management System***Time : Three Hours**Maximum Marks : 70*

- Note:* i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Briefly explain about Database system architecture. 7
b) Explain E-R Model in detail with suitable example. 7
2. a) Consider the following tables: 7
Employee (Emp_no, Name, Emp_city)
Company (Emp_no, Company_name, Salary)
i) Write a SQL query to display Employee name and company name.
ii) Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary > 10000.
iii) Write a query to display all the employees working in "XYZ" company.
b) Consider the following relational schema 7
Employee (empno, name, office, age)
Books (isbn, title, authors, publisher)
Loan (empno, isbn, date)
Write the following queries in relational algebra.
i) Find the names of employees who have borrowed a book published by McGraw-Hill.
ii) Find the names of employees who have borrowed all books published by McGraw-Hill.

- iii) Find the names of employees who have borrowed more than five different books published by McGraw-Hill.

3. a) What is 1NF, 2NF, 3NF and BCNF (Boyce-Codd Normal Form)? 7
b) Explain functional dependency and Trivial functional dependency with examples. 7
4. a) What is two-phase locking and how does it guarantee serializability? 7
b) Discuss the concurrency control mechanism in detail using suitable example. 7
5. a) Explain Triggers and its types with examples. 7
b) Discuss the various type of join operations? Why are these join required. 7
6. a) Explain the purpose of checkpoint mechanism. How often should checkpoints be performed. 7
b) What do you understand by distributed databases? Give the various advantages and disadvantages of distributed database management system. 7
7. a) What is structured query language? How the DDL and DML are different? Explain. 7
b) Describe the three-level architecture of DBMS? Also explain its importance in a database environment. 7
8. a) What do you mean by mapping cardinalities? Explain various type of cardinalities. 7
b) Define the following in context of SQL. 7
i) Distinct clause
ii) Group by Clause
iii) Union
iv) Natural Join
v) Order by clause