COMP/IV/CBGS/DBMS / 15-12-16

Database management systems

Q.P. Code : 541603

(3 Hours) **Total Marks: 80**

N.B.: (1) Question No.**1** is **compulsory**.
(2) Solve any **three** questions out of the remaining questions.
(3) Make **suitable** assumptions if **needed**.

1. (a) Give the advantages of DBMS over File Processing Systems. **5**
(b) What are the steps involved in Query Processing. **5**
(c) Explain Shadow Paging in brief. **5**
(d) Define Super Key and Candidate Key with an example. **5**

2. (a) Discuss conflict serializability and view serializability with examples. **10**
(b) Describe the overall architecture of DBMS with suitable diagram. **10**

3. (a) Explain the following Relational Algebra Operations with example: **10**
i. Natural Join iii. Project
ii. Union iv. Select
(b) Explain types of integrity constraints with example. **10**

4. (a) What is Normalization? Explain 1NF, 2NF, 3NF and BCNF giving examples. **10**
(b) Consider the following database schema: **10**

Employee(employee_name, street, city, date_of_join)
Works(employee_name ,company_name, salary)
Company(company_name, city)
Manages(employee_name, manager_name)
Solve the following queries using SQL:
i. Give all employee of ABC Company a 25% rise.
ii. Find all employees who live in the same cities and on the same street as their manager.
iii. Find all employees who join in the month of April.
iv. Delete the Smith belonging to XYZ Company.

5. (a) What is an attribute? Discuss various types of attributes with examples. **10**
(b) Explain Security and Authorization in DBMS. **10**

6. Write Short notes on: **20**
(a) Total and Partial Participation
(b) Data Independence
(c) ACID Properties
(d) Aggregate Functions in SQL