

N.B. (1) Question No. 1 is compulsory.

(2) Attempt any four questions from Question Nos. 2 to 7.

(3) All the queries are based on the tables with the following structures :—

- (a) Employee (ecode, ename, salary, status, deptno, city)
- (b) Dept (deptno, dname, city)
- (c) Product (pno, sno, pname, unitsinstock, unitprice)
- (d) Order (ono, pno, quantity, odate)

1. a) A table named Employee is created with the following fields. (4)  
Write an ALTER TABLE statement that defines a single CHECK constraint for the following:
  - 1) The CITY column allows cities only 'BOSTON', 'DALAS', and 'AUSTIN'
  - 2) Also if CITY is 'AUSTIN' DEPTNO is 'D2' OR 'D3' and
  - 3) if CITY is 'DALAS' DEPTNO is 'D1' and
  - 4) if CITY is 'BOSTON' DEPTNO is 'D1'
- b) Explain the 12 rules suggested by E.F. Codd. (6)
- c) Give a brief History of Structured Query Language. (6)
- d) Write SQL statement for creating order table with the following constraints (4)
  - 1) pno is foreign key referencing tables product
  - 2) define ono as the primary key
  - 3) quantity must be between 1 and 1000
  - 4) ono should starts with 'OR'
2. a) Explain the symbolic constants. (4)
- d) Write SQL statements for the following (6)
  - 1) To display the details of employees 'MARK', 'STEEVE' and any other employee from department D1.
  - 2) List the employee who is getting highest salary.
  - 3) Select the employees whose salary less than the salary of the highest paying employee from department D3.
- c) Discuss the evolution of ANSI/ISO standard for SQL. (5)
- d) Describe the referential integrity problems. (5)
3. a) Write queries for the following:- (4)
  - 1) List the names of the employees with their department names
  - 2) Get the second maximum salary from the employee table.
- b) Explain the various data types available in SQL2. (6)
- c) Explain Self Join with a suitable example. (6)
- d) Explain calculated columns in a select list and where clause with the help of a SELECT statement. (4)
4. a) What do you mean by a Foreign Key? How do you set it to an existing table? (4)
- b) Write SQL statements for the following (6)
  - 1) List all unique cities where a department locate and/or a employee live.
  - 2) Get the unique salaries from the employee table.
  - 3) Create a grouped view of deptno and average salaries of each department.
- c) What is a View? What are the advantages of using views? (5)
- d) Briefly explain ANSI/ISO transaction model. (5)

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5. a) Write short notes on Referential cycles. (4)
- b) Write queries for the following:- (6)
1. Create a duplicate table named 'Dup' for Employee table with all records.
  2. Get department numbers of departments for which more than one employees are assigned.(Using GROUP BY and HAVING)
  3. Display the total number of departments located in each city.
- c) Differentiate between - (5)
- =ANY and =ALL
  - >ANY and >ALL
  - <ANY and <ALL
  - >=ANY and >=ALL
  - <=ANY and <=ALL
- d) What do you mean by correlated subquery? Explain with a suitable example. (5)
6. a) Write SQL queries for the following:- (4)
- 1) Get all employee names that starts with 'S'
  - 2) List the employees whose salary is equal to any of the departments average.
- b) Explain non-repeatable read and dirty read problems. (6)
- c) Explain various locking levels. (5)
- d) What are drawbacks of File Management Systems? Explain. (5)
7. a) Write the SQL statements for the following. - (4)
- 1) User 'SAM' wants to grant update and select privileges on software table to another user 'GROFF' and he wants to let him grant these permissions to other users.
  - 2) User 'SAM' wants to take away all permissions on the programmer table that were formally granted to all users.
- b) Discuss multi-database and multi-location database architectures. (6)
- c) Differentiate between Horizontal and Vertical views. (5)
- d) Explain the privileges that are defined in the SQL standard? (5)