

(8 pages)

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M.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2013.

Third Semester

Computer Applications

DATABASE MANAGEMENT SYSTEM

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The database schema is written in
(a) HLL (b) DML
(c) DDL (d) DCL
2. Key to represent relationship between tables is called
(a) Primary key (b) Secondary Key
(c) Foreign Key (d) None of these

3. A table joined with itself is called
(a) Join (b) Self Join
(c) Outer Join (d) Equi Join
4. The statement in SQL which allows to change the definition of a table is
(a) Alter (b) Update
(c) Create (d) select
5. Every Boyce-Codd Normal form is in
(a) first normal form
(b) second normal form
(c) third normal form
(d) none of these
6. In order to reduce the overhead imposed on transaction processing by O.S. one can use
(a) transaction monitor
(b) parallel processing
(c) concurrency in transactions
(d) high performance transactions.
7. Complex entities can be constructed using the following operation
(a) sum (b) union
(c) aggregation (d) collection



8. If there exists set of transactions such that every transaction in the set is waiting for Another transaction in the set then the system is called
- Transaction failure
 - Transaction processing
 - Dead-lock
 - Two-phase lock
9. The predominant way of storing data today is using which type of database models?
- Hierarchical
 - Network
 - Object oriented
 - Relational
10. Which of the following items is not the advantage of a DBMS?
- Improved ability to enforce standards
 - Improved data consistency
 - Local control over the data
 - Minimal data redundancy

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b).

11. (a) Write a note on transaction management.
- Or
- (b) Explain three level architecture of database.

Page 3 Code No. : 6844

12. (a) Explain lossless join decomposition.
- Or
- (b) Explain DDL with examples.
13. (a) Explain storage types.
- Or
- (b) Explain two approaches to deadlock prevention.
14. (a) Explain type inheritance under object based databases.
- Or
- (b) Explain the applications of data mining.
15. (a) Consider the following relational schema
 Person(driver_id, name, address)
 Car(license,model,year)
 Accident(report-number,date,location)
 Owns(driver_id, license)
 Participated(driver_id,car, report_ number, damage_amount)

Construct the following SQL queries:

- Find the number of accidents in which the car belonging to "John" involved.
- Update the damage amount for the car with license number "ccdd12345" in the accident with report number "R12345" to rs. 15000.

Or

Page 4 Code No. : 6844

[P.T.O]



- (b) Consider the following employee database:
employee (employee_name,street,city)

works(employee_name,company_name,salary)

company(company_name,city)

manages(employee_name, manager_name)

Give an expression in SQL for each of the following queries:

- (i) Find the names and cities of residence of all employees who work for First bank.
- (ii) Find all employees who earn more than each employee of small bank corporation.

SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b).

16. (a) Explain the components of E-R model with a neat diagram and an example.

Or

- (b) Write a note on transaction management and storage management.

Page 5

Code No. : 6844

17. (a) Explain multivalued dependency and join dependency with examples.

Or

- (b) Discuss about types of integrity constraints with examples.

18. (a) Explain with example dynamic hashing.

Or

- (b) Explain lock-based protocols.

19. (a) Discuss about components of data warehouse.

Or

- (b) Explain commit protocols under distributed database.

20. (a) Consider the employee database where primary keys are underlined. Give an expression In SQL for each of the following queries:

Employee(empno, name, office,age)

Books(isbn, title, author, publisher)

Loan (empno, isbn, date)

Page 6

Code No. : 6844



Write the following queries in SQL

- (i) Print the names of employees who have borrowed any book from McGraw-Hill.
- (ii) Print the names of employees who have borrowed all books from McGraw-Hill.
- (iii) For each publisher print the names of employees who have borrowed more than five books of that publisher.
- (iv) Print the names of employees who have bought books authored by "VAIRAMUTHU"

Or

- (b) Consider the following relational schema:
Employee(emp_no, emp_name, bdate, address, sex, salary, dno) primary key: emp_no
Department(dnumber, dname) primary key : dnumber
Project(pnumber, pname, plocation, dnum)
primary key: pnumber
works_on(empcode, pno, hours) primary key: (empcode, pno)

Using above tables write SQL queries for the following:

- (i) Retrieve the name of each employee who works on all the projects controlled By department number 5.

- (ii) For each project on which more than two employees work, retrieve the Project number, project name, and the number of employees who work on the project.
- (iii) Retrieve a list of employees and the projects they are working on, ordered by Department and within each department, alphabetically by employee name.
- (iv) For each department, retrieve the department number, the number of Employees in the department and their average salary.

