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Name

Reg. No.....

**THIRD SEMESTER B.C.A. DEGREE (SUPPLEMENTARY/IMPROVEMENT)  
EXAMINATION, NOVEMBER 2015**

(UG—CC SS)

Core Course

CA 3B 03—DATABASE DESIGN AND RDBMS

Time : Three Hours

Maximum : 30 Weightage

**I. Answer *all* questions :**

- 1 In three level architecture of DBMS, the level closest to the user is \_\_\_\_\_
- 2 A \_\_\_\_\_ query is the most common type used for extracting specific information from the database.
- 3 \_\_\_\_\_ is the symbol used in ER diagrams for representing relationship among entities.
- 4 An attribute in one table that references a unique record in another table is called a \_\_\_\_\_
- 5 The Project operation in relational algebra gives a \_\_\_\_\_ subset of the whole data
- 6 The command used to change the schema of a table, within the database is \_\_\_\_\_
- 7 A relational approach to DBMS, the number of attributes in a relation is called \_\_\_\_\_ of the relation.
- 8 The information stored in the DBMS catalog about the database such as structure of each file, type and storage format etc. is known as \_\_\_\_\_
- 9 The concept of \_\_\_\_\_ helps in preventing simultaneous **updation** of data in concurrent execution of transactions.
- 10 ON UPDATE CASCADE ensures \_\_\_\_\_
- 11 The type of lock required before updating a piece of data in a databas<sup>e</sup>\_\_\_\_\_
- 12 The \_\_\_\_\_ command is used to allow privileges to a User.

(12 x ¼ = 3 weightage)

**II. Answer *all* questions :**

- 13 What are composite primary keys ?
- 14 What is data independence ?

Turn over

- 15 Write short note on entity sets.
- 16 Define the term **cardinality** of relations, Give example.
- 17 What is functional dependency ?
- 18 What is the use of 'group by' clause in SQL ?
- 19 What is the syntax of ALTER TABLE command in SQL ?
- 20 What is a trigger ?
- 21 What is stored procedure ?

(9 x 1 = 9 weightage)

III. Answer any *five* questions :

- 22 How is the database organized in the Hierarchical Data Model ? Discuss.
- 23 Explain briefly any *four* Aggregate Functions in SQL.
- 24 Differentiate **3NF** and **BCNF** with example.
- 25 Diagrammatically illustrate and discuss the three schema architecture of a DBMS.
- 26 Explain the difference between different types of Locks.
- 27 What is Nested Query ? Give an example.
- 28 Consider the following **Edu\_Schema** :

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DEPT _ MSTR (dept #, dept_name)
FACULTY (faculty #, faculty_name, dept #)
COURSE (course #, course_name, dept #)
STUDENT (student #, student_name, course #, fee_paid)

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Write the following queries in SQL :

- (i) Obtain the list of faculty belongs to "COMPUTER" department.
- (ii) Obtain a list which shows the student name along with his/her course and department.
- (iii) Obtain a list shows the department name and the number courses offered by that department.
- (iv) Obtain a list which gives the course name and total fees collected for that particular course.

(5 x 2 = 10 weightage)

IV. Answer any *two* questions :

29 (a) Construct an E-R diagram for a Car-Servicing Company that has a set of customers, each of whom owns one or more cars. Each car has associated with one to any number of recorded service history. Each service job will be under the supervision of a service engineer. Convert this into a set of tables also.

(b) Explain the term attributes of a relation. What are the different types of attributes ?

30 Explain the different **concurrency** control problems in DBMS.

31 What are database triggers ? Write an UPDATE trigger on **PRODUCT\_MASTER** which keep track of the records that are being updated. The old values of the updated record are added in the **PRODUCT\_PRICE\_HISTORY** table. Use required attributes with appropriate data types.

(2 x 4 = 8 weightage)