Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/MBA/SEM-3(FT) & 5(PT)/SM-301/2012-13

2012

DATABASE MANAGEMENT

Time Allotted : 3 Hours   *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

$10 \times 1 = 10$

   i)   A query is used to

   a)   extract information from database

   b)   create entities

   c)   create storage space

   d)   none of these.

   ii) Extension of a relation is

   a)   set of tuples appearing in a relation

   b)   schema of a relation

   c)   set of relationship of a given relation at a given point of time

   d)   none of these.

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iii) An attribute that can be broken down into smaller parts is called a (n) .... attribute.

    a) Associative   b) Simple

    c) Composite   d) Complex.

iv) In ER model, a multivalued attribute is represented using

    a) Ellipse   b) Double diamond

    c) Double rectangle   d) Double ellipse.

v) DCL is a language that allows

    a) Granting of privileges   b) Retrieval of data

    c) Alter schema objects   d) Rename schema.

vi) Normalisation is used

    a) to remove insertion, updation, deletion anomalies

    b) to replace data

    c) to add new data

    d) none of these.

vii) A rule that states that each foreign key value must match a primary key value in the other relation is called the

    a) Referential integrity constraint

    b) Key match rule

    c) Entity key group rule

    d) Foreign / primary match rule.

viii) On which structure is the hierarchical model based ?

    a) Graph   b) Linked list

    c) Tree   d) None of these.

ix) The relational calculus is used to measure

    a) the formula

    b) selective power of relational languages

    c) the propositions

    d) none of these.

x) A distributed DBMS is characterized by

   a) number of fragments

   b) replication of fragments

   c) presence of global application

   d) all of these.

xi) REVOKE command allows

   a) withdrawal of privileges

   b) read operation

   c) granting privileges

   d) none of these.

xii) The properites of transaction are

   a) atomicity   b) isolation

   c) consistency   d) all.

xiii) A …………. is any key that identifies each entity uniquely. It functionally determines all of the entities' attributes.

   a) Superkey   b) Primary key

   c) Foreign key   d) Both (a) and (b).

xiv) In the relational model, the number of rows is referred to as ……………. and number of columns is referred to as ………………………

   a) tuples, attributes   b) connectors, nodes

   c) attributes, tuples   d) nodes, connectors.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What is database management system ? Compare it with File system.   2 + 3

3. What do you mean by instance and schema of the database ? Explain the difference between physical and logical data independence.   1 + 1 + 3

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4. Explain the distinction between the terms 'serial schedule' and 'serializable schedule'.

5. Explain the various steps involved in query processing.

6. Define the following types of attributes and give an example for each :

   derived, composite and multivalued attributes.

7. Define DDBMS (Distributed Database Management System). List the advantages of DDBMS. 2 + 3

8. What are advantages and disadvantages of Object Oriented Database Management System ?

9. What benefit is provided by strict two phase locking ? What disadvantages result ? 3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

10. State SQL command for
    i) create a table called "Weather' with columns City, Average Temperature, Month. Use proper data format.
    ii) insert a new record in the table with the data as City- Los Angeles, Avg. Temp. 10 ˚C and month as October.
    iii) Update the Weather table by changing the average temp. to 20 ˚C.

11. Use SQL scripts to create three tables : Employee, Department and Location using Primary & Foreign key in appropriate places.

12. Assume there is a Supplier table denoted by S. Use SQL script to get SNO for all suppliers in Paris and status greater than 10. Assume there another Part table. Use SQL script to get list of PNO for parts whose weight is one of 12, 16 or 17, 20.

13. Explain with illustrative data, normalized table from un-normalized table.

14. Write SQL statement to list those managers in a department, who are bosses *i.e.* who are not reporting to anyone.

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