Roll No. 6211[redacted]

Total No. of Questions : **9**] [Total No. of Printed Pages : **8**

(2042)

BCA (CBCS) RUSA IInd Semester Examination

3747

DATABASE MANAGEMENT SYSTEM

Paper : BCA-0205

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Attempt *five* questions in all. Part–A is compulsory. Attempt *one* question each from Parts–B, C, D and E.

Part–A

(Compulsory Question)

1. (A) Choose the correct answer :

(i) What is the full form of DBMS ?

(a) Data of Binary Management System

(b) Database Management System

(c) Database Management Service

(d) Data Backup Management System

(ii) Which of the following is not an example of DBMS ?

(a) MySQL

(b) Microsoft Access

(c) IBM DB2

(d) Google

(iii) The values appearing in given attributes of any tuple in the referencing relation must likewise occur in specified attributes of at least one tuple in the referenced relation, according to ..... integrity constraint.

(a) Referential

(b) Primary

(c) Referencing

(d) Specific

(iv) Why the following statement is erroneous ?

SELECT *dept_name, ID, avg (salary)*

FROM *instructor*

GROUP *BY dept_name*;

(a) Dept_id should not be used in group by clause

(b) Group by clause is not valid in this query

(c) Avg(salary) should not be selected

(d) None of these

(v) Which of the following key is required into handle the data when the encryption is applied to the data so that the unauthorised user cannot access the data ?

(a) Primary key

(b) Authorised key

(c) Encryption key

(d) Decryption key

(vi) A ..... in a table represents a relationship among a set of values.

(a) Column

(b) Key

(c) Row

(d) Entry

(vii) Department (dept_name, building, budget) and Employee (employee_id, name, dept_name, salary)

Here the dept_name attribute appears in both the relations. Here using common attributes in relation schema is one way of relating ..... relations.

(a) Attributes of common

(b) Tuple of common

(c) Tuple of distinct

(d) Attributes of distinct

(viii) Which of the following is a fundamental operation in relational algebra ?

(a) Set intersection

(b) Natural join

(c) Assignment

(d) None of these mentioned

(ix) In precedence of set operators, the expression is evaluated from :

(a) Left to left

(b) Left to right

(c) Right to left

(d) From user specification

(x) What is an Instance of a Database ?

(a) The logical design of the database system

(b) The entire set of attributes of the Database put together in a single relation

(c) The state of the database system at any given point of time

(d) The initial values inserted into the Database immediately after its creation

1×10=10

(B) Write short notes for the following :

(i) Records and Files

(ii) Direct Files

(iii) Third Normal Forms

(iv) Foreign Keys

(v) Advantages of DBMS 4×5=20

Part–B

(Unit–I) 10 each

Note :– Attempt any *one* question.

2. State *five* main advantages of using a DBMS.

3. Discuss the main categories of data models. What are the basic differences between relational model and object model ?

Part–C

(Unit–II) 10 each

Note :– Attempt any *one* question.

4. Define the following terms :

Disk, disk pack, track, block, cylinder, sector, interblock gap, read/write head.

5. What are the relational algebraic operations developed specifically for a relational database ?

Part–D

(Unit–III) 10 each

Note :– Attempt any *one* question.

6. Explain the First Normal form and Second Normal form in detail.

7. What is multivalued dependency ? What type of constraint does it specify ? When does it arise ?

Part–E

(Unit–IV) 10 each

Note :– Attempt any *one* question.

8. What are the various advantages of using MS-Access ?

9. Explain the following terms with respect to Tables :

   (a) Creation

   (b) Design Structure

   (c) Data Entry

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BCA (CBCS) RUSA IInd Semester Examination

4389

DATABASE MANAGEMENT SYSTEM

Paper : BCA–0205

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Attempt *five* questions in all. Unit–I is compulsory. Select *one* question from each of the Units–II, III, IV and V.

Unit–I

(Compulsory Question) 7×2=14

1. Attempt any *seven* parts :

Explain the following :

(i) Field and Records

(ii) Data Abstraction

Unit–V 14 each

8. (a) Explain some important features of MS-ACCESS.

(b) What is Form ? How 'Modal' and 'Modeless' forms are implemented ? Explain.

9. (a) Explain 'Make-table', 'Update' and 'Append' operations through suitable examples.

(b) What is Report ? Create a simple report from a table of database of your choice.

(iii) Primary key and Foreign key

(iv) Entity and Attributes

(v) Direct Files

(vi) Relation Scheme

(vii) Master-detail Table

(viii) Query

(ix) Dependency preservation

(x) Tuple

Unit–II 14 each

2. (a) What is Data-base ? Explain its architecture in detail along with its advantages and disadvantages.

   (b) Define Data-model. Give its classification with examples.

3. (a) What is DBMS ? Explain the structure of DBMS. Also explain its importance and limitations.

   (b) Compare File-based, semantic and Entity-relationship models.

Unit–III 14 each

4. (a) Define File. Explain its various operations along with its types.

   (b) Write short note on 'Relational Algebra' and 'Relational Calculus.'

5. (a) What is Indexing ? Explain the various types of indexes in detail.

   (b) What is Relational Model ? How is it implemented ? Explain through example.

Unit–IV 14 each

6. (a) What is Normal Form ? Explain third and Boyce Code with suitable examples.

   (b) Define Dependency. Explain functional and Multi-valued dependency in detail.

7. (a) Explain through short notes on the following :

   (i) Relational Data-base Design

   (ii) Decomposition

   (b) What is Normaliation ? Define 2NF and 3NF explain their pre-condition through suitable examples.

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BCA (CBCS) RUSA IInd Semester Examination

4031

DATABASE MANAGEMENT SYSTEM

Paper : BCA-0205

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Select *one* question from each Unit II, III, IV and V. Unit–I is compulsory,

Unit–I

(Compulsory Question)

1. Attempt any *seven* :

   (i) What is data and information ?

   (ii) What is Primary key ?

   (iii) What is a direct file ?

   (iv) What is difference between file oriented and DBMS approach ?

(v) What is a query ? Write all its types.

(vi) What is the need of normalization ?

(vii) Define data integrity.

(viii) What is an attribute and tuple ?

(ix) Describe DML statement is SQL.

(x) Describe the types of relational calculus. 7×2=14

Unit–II

2. What do you mean by data modeling for a database ? Discuss data Abstraction and data integration with suitable example.

3. What is E-R model ? Discuss the various shapes used to draw E-R diagram with the help of one suitable example. 14 each

Unit–III

4. What is file ? Discuss various methods of file organization with the help of suitable example.

5. What is a relation ? How do you define relational database ? Discuss degree and cardinality of a relation with the help of suitable example. Explain Join operation. 14 each

Unit–IV

6. What is normalization ? Define 3NF and BCNF explaining their pre-conditions. Give suitable examples.

7. Write short notes on the following :

(i) Multivalued Dependency.

(ii) Relational Database design. 14 each

Unit–V

8. What is master-detail table ? How primary and foreign keys are related to each other ? Discuss their usage in master-detail table by giving suitable example.

9. Discuss with example the process of creating a form by using a wizard. 14 each

9. Create a table with the following fields using query of MS Access :

Roll No.	–	Integer
Name	–	String
Age	–	Integer
Sex	–	Logical (M/F)
Weight	–	Real

Also write a query to insert data in the table. 14

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BCA (CBCS) RUSA IInd Semester Examination

3761

Database Management System

Paper : BCA-205

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Select *one* question from each Unit II, III, IV and V. Unit–I is compulsory.

Unit–I

(Compulsory Question)

1. Attempt any *seven* :

(i) Define Database system.

(ii) What is an Attribute and Triple ? Explain with example.

(iii) Define Data independence.

(iv) What is ER diagram ? Explain with an example.

(v) What is SQL ? Explain.

(vi) What is Join ? Explain its types.

(vii) What is meant by log base recovery ?

(viii) What are integrity constraints ? Explain.

(ix) What are weak entities ? How are they different from strong entity ?

(x) Who is DBA ? Explain his role in database management. 7×2=14

Unit–II

2. What is DBMS ? Explain three level of architecture with diagram.

3. What are data models ? Compare and contrast hierarchical, network and relational data models. 14

Unit–III

4. How do you define a file and its organization ? Discuss various operations, that can be performed on a file.

5. What is Relational Algebra ? How is it different from Relational Calculus ? Explain the following operations in relational algebra by suitable example :

(i) Projection

(ii) Division

(iii) Join

(iv) Minus 14

Unit–IV

6. Why normalization is needed ? Explain 1NF, 2NF and 3NF by giving suitable example.

7. What is Relational Scheme ? How do you define functional dependency ? Explain with the help of suitable example. Also discuss various types of data constraints. 14

Unit–V

8. How can you define Relationship in database ? Describe the process of setting relationship among various tables in MS Access.