UG—BCA (C – 2003)

2022(New)

Time : 3 hours

Full Marks : 70

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

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following:

10×4 = 40

1. Explain the three level of Architecture of Database Systems. How Data Independence is achieved in this system ?

2. Write SQL Queries for following set of tables :

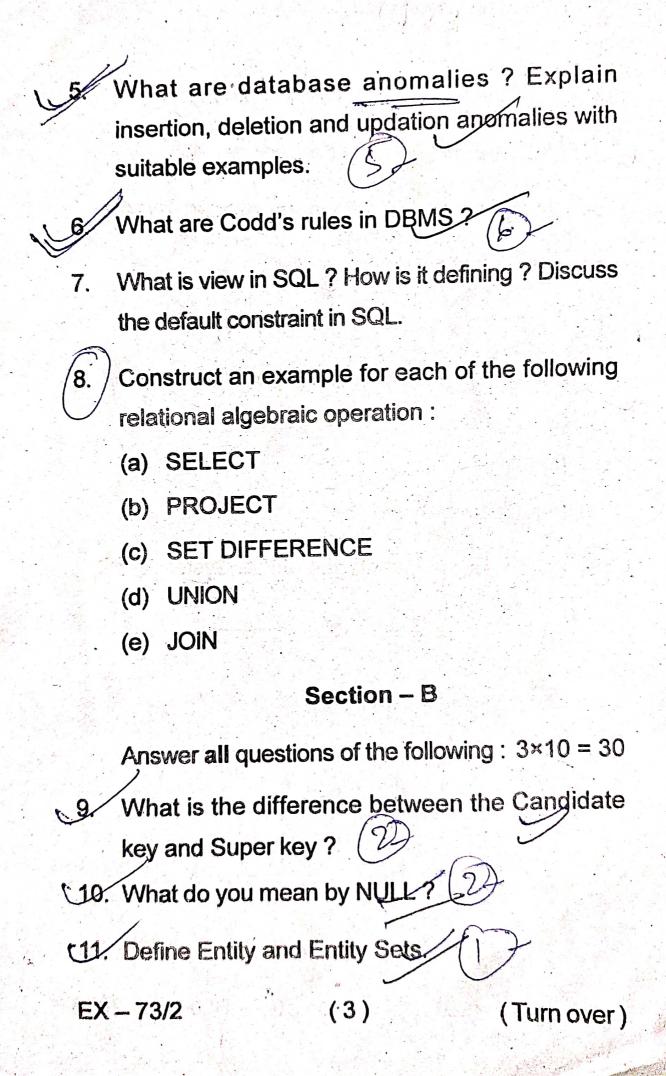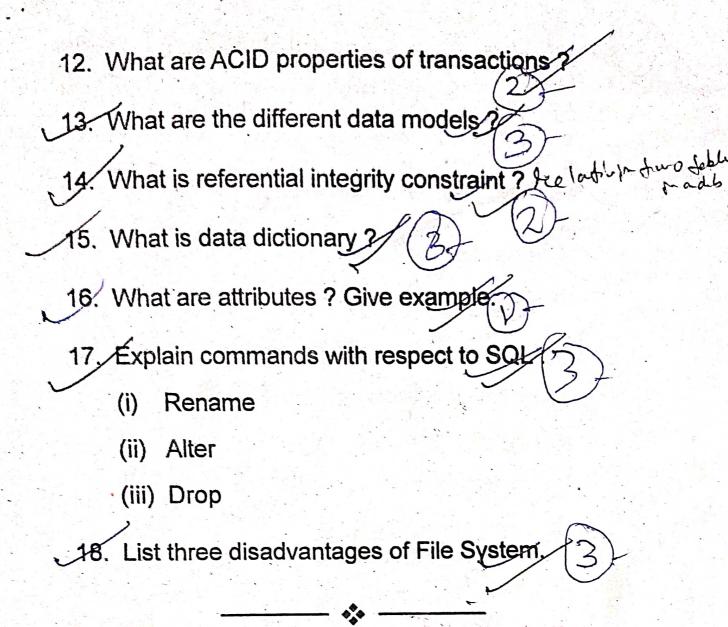   EMPLOYEE (Emp No, Name, DoB, Address, Gender, Salary, DNumber)

   DEPARTMENT (DNumber,, Dname, Manager EmpNo, ManagerStartDate).

EX – 73/2

(Turn over)

(a) Display the Age of 'male' employes.

(b) Display all employees in Department named 'Marketing'.

(c) Display the name of highest salary paid 'female' employee.

(d) Which employee is oldest manager in company ?

(d) Display the name of department of the employee 'Jones'.

3. "Practically, one must decompose the tables only till 3NF as it is loss less, dependency preserving decomposition." Comment on the above statement. Give example in support of your answer. How is 3NF different from BCNF ?

4. An employee works for a department. If the employee is a manager, then she/he manages the department. As an employee the person works for the project and the various departments of a company control those projects, and employee can have many dependents. Draw and E-R diagram for the above company specifying aggregation, generalization or specialization hierarchy, if any.

EX – 73/2   (2)   Contd.

5. What are database anomalies ? Explain insertion, deletion and updation anomalies with suitable examples.

6. What are Codd's rules in DBMS ?

7. What is view in SQL ? How is it defining ? Discuss the default constraint in SQL.

8. Construct an example for each of the following relational algebraic operation :

   (a) SELECT

   (b) PROJECT

   (c) SET DIFFERENCE

   (d) UNION

   (e) JOIN

Section – B

Answer all questions of the following : $3 \times 10 = 30$

9. What is the difference between the Candidate key and Super key ?

10. What do you mean by NULL ?

11. Define Entity and Entity Sets.

12. What are ACID properties of transactions ?

13. What are the different data models ?

14. What is referential integrity constraint ? *relation fw two table in a db*

15. What is data dictionary ?

16. What are attributes ? Give example.

17. Explain commands with respect to SQL

    (i)   Rename

    (ii) Alter

    (iii) Drop

18. List three disadvantages of File System.

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UG — BCA (F – 2003)

2021

Time : 3 hours

Full Marks : 70

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

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following :

10×4 = 40

1. What do you mean by DBMS ? What are the advantages of DBMS over traditional file based system ?

2. Explain E-R model and various notations of E-R model. Draw the E-R diagram of College Management System. Take necessary assumption where required.

(Turn over)

OP – 79/2

3. What is Normalization ? State BCNF and explain how does it differ from 3NF using suitable example.

4. Explain, in detail, about the various key constraints used in database system. What is the importance of NULL values in Relational Model ?

5. Draw and explain three-tier schema architecture of DBMS.

6. Explain Codd's rule for database system.

7. Using appropriate examples and give the syntaxes of the following statements in SQL :

    (a) ALTER

    (b) DROP

    (c) SET ...... UPDATE

    (d) SELECT

    (e) JOIN

8. What is relational algebra in DBMS ? Discuss, in detail, by taking suitable example.

Section – B

Answer all questions of the following : 3×10 = 30

9. Write five important functionalities of DBA.

10. What is a view ?

11. Describe the properties of relation.

12. Differentiate between Specialization and Generalization.

13. List and explain common data types available in SQL.

14. Describe the concept of Referential Integrity.

15. What is attribute in DBMS ?

16. What is primary key ? How does it differ from super key ?

17. What is data independence ? Why is it essential ?

18. What do you mean by query processor ?

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UG— BCA
(F – 2003) .

2019

Time : 3 hours

Full Marks : 70

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

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer the **four** questions of the following :

10×4 = 40

1. What is Database System ? Explain briefly about Database System Architecture.

2. Define Data Model. Compare relational network and hierarchical models in detail.

3. What is BCNF ? How it is achieved and what are its advantages over 3NF ?

JY – 78/2

(Turn over)

4. What is ER-Model ? Create Entity-Relationship Diagram for Student Management System.

5. What is meant by Three Level Architecture of Database System ? Explain the role of conceptual level in detail.

6. What is Relational Algebra ? How many types of Relational Algebra ? Explain it.

7. How are deadlocks handled in Transaction Processing ?

8. What is database security and integrity ? Write down the steps to recover the database.

Section – B

All questions are compulsory : $3 \times 10 = 30$

9. What is Data Dictionary ?

10. What are the disadvantages of file processing system ?

11. What is DDL ?

12. What are concurrency control schme ?

13. What are the responsibilities of DBA ?

14. Differentiate between Physical and Logical data independence.

15. How primary keys are useful ?

16. What are aggregation in a ER-Model.

17. What are security threats ?

18. What are ACID properties ?

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