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Paper Code : OE-EEE601B Data Base Management System

UPID : 006579

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

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

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following : [1 x 10 = 10]
- (I) Demonstrate the use of B trees ?
 - (II) What is concurrency control in DBMS with example?
 - (III) What is Database Security?
 - (IV) What is data warehouse in DBMS?
 - (V) What is called Database?
 - (VI) What do you mean by Non-Procedural Language?
 - (VII) Classify Relational Calculus.
 - (VIII) Define what is a Hash Function?
 - (IX) Discuss conflict Serializability.
 - (X) What is intrusion detection system in DBMS?
 - (XI) Define aggregate function.
 - (XII) What is the rule of B-tree?

Group-B (Short Answer Type Question)

Answer any three of the following : [5 x 3 = 15]

2. Explain the term Candidate Key, Primary Key, Foreign Key, Super Key and Alternate Key. [5]
3. Explain the various fundamentals operators used in relational algebra. [5]
4. What is 1NF, 2NF, 3NF and BCNF (Boyce-Codd Normal Form)? [5]
5. Compare B tree and B+ tree. [5]
6. What is Data dictionary? What do you mean by unary and binary operations in relational algebra? Give examples. [5]

Group-C (Long Answer Type Question)

Answer any three of the following : [15 x 3 = 45]

7. (a) What are metadata and data dictionary? [4]
- (b) Student(Stud_no : integer, Stud_name: string) Membership(Mem_no: integer, Stud_no: integer) Book(book_no: integer, book_name:string, author: string) Iss_rec(iss_no:integer, iss_date: date, Mem_no: integer, book_no: integer) [6]
- For the above schema, perform the following —
 - a) List all the student names with their membership numbers
 - b) List all the issues for the current date with student and Book names
 - c) List the details of students who borrowed book whose author is CJDATE
 - d) Give a count of how many books have been bought by each student
 - e) Give a list of books taken by student with stud_no as 5
- (c) Explain four types of Integrity constraints. [5]
8. (a) Write the difference between Procedural and non-procedural DML. [5]
- (b) What do you mean by functional dependency? [2]
- (c) Explain different types of functional dependency. [5]
- (d) What is difference between Join and outerjoin operation? [3]
9. (a) Explain the different types of data independence. [5]
- (b) Explain object oriented data models and network data models. [5]

- (c) Discuss the problem caused by data redundancies. Can data redundancies be completely eliminated when the database approach is used? [5]
10. (a) What do you mean by unary and binary operations in Relational algebra? Give example. [5]
- (b) Explain two-phase locking protocol . [5]
- (c) Draw the ER diagram of Hospital management and explain. [5]
11. (a) Discuss Data mining techniques. [4]
- (b) Advantages and disadvantages of Data mining. [4]
- (c) Discuss about Data Mining tools. [3]
- (d) What are the challenges of implementation of Data mining? [4]

*** END OF PAPER ***