



# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

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 \*\*\*