



ENGINEERING & MANAGEMENT EXAMINATIONS, DECEMBER - 2008
DATABASE MANAGEMENT SYSTEM
SEMESTER - 7

Time : 3 Hours]

[Full Marks : 70

GROUP - A

(Multiple Choice Type Questions)

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

10 × 1 = 10

i) key cannot be null.

- | | |
|--------------|------------|
| a) Primary | b) Foreign |
| c) Candidate | d) Unique. |

ii) The DML provides which of the following function(s) to database ?

- | | |
|---------------------|-------------------|
| a) Retrieve records | b) Insert records |
| c) Delete records | d) All of these. |

iii) The project operation used in Relational Algebra is

- | | |
|----------------------|---------------------|
| a) unary operation | b) binary operation |
| c) ternary operation | d) none of these. |

iv) The collection of data stored in a database at a particular moment is called the

- | | |
|-------------|-------------------|
| a) relation | b) schema |
| c) instance | d) none of these. |

v) All candidate keys other than the primary keys are called

- | | |
|-------------------|-------------------|
| a) secondary keys | b) alternate keys |
| c) eligible keys | d) none of these. |

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**GROUP - B****(Short Answer Type Questions)**Answer any *three* of the following. $3 \times 5 = 15$

2. State the advantage(s) of using database system over file-based information system.
3. Explain the concept of specialization and generalization in ER modelling through appropriate example:
4. What are the problems that may occur due to concurrent execution of transactions ?
5. Distinguish between serial schedule and serializable schedule through example(s).
6. Write a short note on 'secondary index'.

GROUP - C**(Long Answer Type Questions)**Answer any *three* questions. $3 \times 15 = 45$

7. a) Define ACID property of database. 5
- b) Define BCNF. Why is it considered stronger than 3 NF ? Justify your answer. 2 + 4
- c) Explain the term 'weak and strong entity' in context of E-R data model. 4
8. a) Consider the following relation schema
 customer (cust_name, street, city)
 account (account_no, branch_name, balance)
 branch (branch_name, city, assets)
 borrow (loan_no, branch_name, amount).
 i) Find the names of all customers who live in the same street and city as RAM. (Write Relational Algebra expression)
 ii) Find all customers who have an account at all branches located in Salt Lake. (Write Relational Algebra expression)
 iii) Find all customers who have an account at all branches located in Gariahat. (Write SQL Query).
 iv) Find all loan members for loans with an amount greater than Rs. 10,000/- (Write SQL Query) 10
- b) When is it preferable to use Sparse index than Dense index ? Justify your answer. 5



9. a) State the steps involved in query processing. Why is the query optimization needed ? 3 + 3
- b) Write a brief note on (Lossless decomposition). 4
- c) Explain the term 'update anomalies'. with suitable example(s). 5
10. a) What are the difference(s) between Natural Join and Outer Join ? Explain. 5
- b) Describe the deadlock-prevention techniques. 5
- c) State the advantage of locking mechanism and also explain the utility of defining shared lock and exclusive lock. 5
11. Write short notes on any *three* of the following : 3 × 5 = 15
- i) Trigger
- ii) View
- iii) Data independence
- iv) View serializability
- v) Role of Functional Dependency in normalization.

END