

CS/B.Tech(EE)/Even/6th Sem/EE-604B/2014

2014

Database Management System

Time Allotted : 3 Hours

Full Marks : 70

*The figure in the margin indicate full marks.
Candidates are required to give their answers in their
own words as far as practicable*

GROUP – A

10x1=10

1. Attempt all questions.

Identify the suitable alternative.

i) Spurious tuples are generated in –

- (a) Equi join (b) Self join
(c) Cartesian join (d) None of these

ii) Which of the following is not a fundamental operator in Relational algebra?

- (a) \times (b) σ (c) Π (d) \div

iii) In a bank, a customer can have multiple account and several customers may have a single joint account. The cardinality ratio between customer and account is –

- (a) 1 : 1 (b) 1 : n (c) n : 1 (d) m : n

iv) The access path to a database is associated with –

- (a) Conceptual level schema (b) Physical level Schema

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- (c) View level Scheme (d) None of these
- v) Delete statement is :
 (a) DDL (b) DML
 (c) TCL (d) None of these
- vi) Transaction must be either committed or aborted is associated with which ACID property –
 (a) Atomicity (b) Consistency
 (c) Isolation (d) Durability
- vii) If a relation is in 3 NF it should not have –
 (a) Multivalued attributes
 (b) Partial functional dependency
 (c) Transitive functional dependency
 (d) all of these
- viii) Which of the following is not a dense index –
 (a) Primary index (b) Clustering index
 (c) Secondary index (d) Multilevel index
- ix) Which of the following is not a privilege –
 (a) DBA (b) update
 (c) Connect (d) resources
- x) Null means –
 (a) 0 for numeric (b) blank space for characters
 (c) Neither (a) nor (b) (d) none of these

Group-B

Attempt any *Three* questions 5X3=15

2. "Any relation without a composite key is in 2NF" – Justify or falsify. 5
3. Establish division operator in terms of fundamental operator

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- of relational algebra with an example. 5
- Describe with proper diagram the self describing nature of DBMS. 5
- Distinguish between DBMS and RDBMS. 5
- Describe in brief the shadow paging technique of recovery management. 5

Group – C

Attempt any *Three* questions 15X3=45

1. Describe in brief the referential integrity constraint and entity integrity constraint. 6
2. (a) Describe the process to generate tables from an E-R diagram. 7
 (b) Define cardinality limits, cardinality ratios, total and partial participation, generalization and specialization. 8
3. (a) BCNF is stricter version than 3NF – Justify. 5
 (b) What is multivalued dependency? What is trivial and non-trivial MVD. 5
 (c) Describe in brief Domain Key Normal Form 5
10. (a) What are the different types of locks. 2
 (b) Discuss in brief the two-phase locking protocol. 6
 (c) Discuss in brief the Time stamp ordering protocol. 7
11. Write short notes on (any three) 5x3
 (i) Distributed database architecture.
 (ii) Triggers.
 (iii) Views.
 (iv) Query optimization using Heuristics.
 (v) Multilevel index.

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