IT-6th Sem NO - 852

8. (a) Consider relation R(A,B,C) and a set of functional dependencies F= {A->BC,B->C,A->B,AB->C}.
Compute the canonical cover for F.

(b) Define BCNF. How does it differ from 3NF? Why BCNF is considered to be stronger than 3NF?

(c) Draw a functional dependency diagram that is in 3NF but not in BCNF.Decompose that FD diagram into BCNF.

(d) Explain candidate key with an example.

[6+4+3+2]

9. (a) Show that two phase locking protocol ensures conflict serializability, and that transactions can be serialized according to their lock points.

(b) How you can test for serializability?

(c) What is ACID property of a Transaction?

[7+4+4]

10. (a) Describe three layer architecture of DBMS.

(b) Indicate the advantage of DBMS over conventional file processing system.

(c) Construct an ER diagram for a Hospital with a set of patients & a set of Medical doctors. Associate with each patient a log of various tests & experiments conducted.

[5+5+5]

11. Write Short notes on any three of the following.

[3X5]

a. Tuple Relational Calculus
b. Functional Dependency
c. Data Dictionary
d. Recovery
e. Precedence Graph

2014

Data Base Management System

Time Alloted : 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
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following. 10x1=10

i) Goals for the design of Logical Schema includes
(a) Avoiding data inconsistency
(b) Being able to construct queries easily
(c) Being able to access data efficiently
(d) All of the above

ii) What is a relational database?
(a) A place to store relational information
(b) A database related to other database
(c) A database to store human relations
(d) None of the above

iii) When an entity instance must be a member of only one subtype, it is which of the following?
(a) Disjoint with total specialization
(b) Disjoint with partial
(c) Overlap with total specialization
(d) Overlap with partial specialization

iv) Which of the following is not an Aggregate function?

(a) Min (b) Max
(c) Select (d) Avg

v) Which of the following makes the transaction permanent in the database?

(a) View (b) Commit
(c) Rollback (d) Flashback

vi) Which of the following is not an advantage of the database approach?

(a) Elimination of data redundancy
(b) Ability of associate deleted data
(c) Increased security
(d) Program/data independence
(e) All of the above

vii) One approach to standardization of storing of data?

(a) MIS
(b) Structured programming
(c) CODASYL specification
(d) None of the above

viii) What type of lock forbids any other user to access the data in any way?

(a) Shared (b) Exclusive
(c) Limited (d) Concurrent

ix) Tables with indexes allows faster searches, but slows performance on

(a) Insertion
(b) Deletion
(c) Update
(d) Select

x) The project operation:

(a) Combines relational tables to provide the user with more information than is otherwise available.
(b) Creates a subset consisting of columns in a table.
(c) Organizes elements into segments.
(d) Identifies the table from which the columns will be selected.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. 3x5=15

2. Compare and contrast different types of joins in database with example.
3. Describe transaction life cycle with a neat diagram.
4. Explain the shadow copy method of implementation of Atomicity and Durability.
5. Discuss about different types of keys used in database.
6. Define Armstrong Axioms to find Closure of a Functional Dependency with example.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. 3x15=45

7. (a) Compute the closure of the following set F of functional dependencies for relational scheme:
R= (A, B, C, D, E) A->BC, CD->E, B->D, E->A

(b) Consider the relation R={A,B,C,D,E,F,G,H,I,J} and the set of functional dependencies:
F={AB->C,A->DE,B->F,F->GH,D->IJ
Decompose R into 3NF.

(c) What do you mean by lossless and dependency preserving decomposition?

(d) What is MDV? Explain with an example

[3+5+4+3]