Roll No .....

IT - 403

B.E. IV Semester Examination, December 2014

Data Base Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Define the two level of data independence.
   b) What are the ACID properties?
   c) List out the various relational algebra operator.
   d) Describe the component of entity relationship diagram with suitable examples.

OR

Describe the features of embedded SQL and dynamic SQL. Give suitable examples.

Unit - II

2. a) What are the three kinds of intent locks?
   b) What do you mean by weak entity set?
   c) Write a note on functional dependencies.
   d) Draw E-R diagram for a small telecom marketing company database, assuming your own data requirements.

OR

Consider the universal relation
R = {A, B, C, D, E, F, G, H, I} and the set of functional dependencies
F = {(A, B)} → {C}, {A} → {D, E}
{B} → {F}, {F} → {G, H},
{D} → {I, J} what is the key for R?
Decompose R into 2 NF, then 3 NF relations.

Unit - III

3. a) Consider the following relation:
   R (<u>A, B</u>, C, D, E)
   The primary key of the relation is AB.
   The following functional dependencies hold:
   $A \rightarrow C \quad B \rightarrow D \quad AB \rightarrow E$
   is the above relation in second normal form?
   b) With an example explain what a derived attribute is?

c) List the commonly used concurrency control techniques.

d) Define a functional dependency list and discuss the six inference rules for functional dependencies, give relevant example.

OR

Discuss two phase locking protocol with suitable example.

Unit - IV

4. a) Give the usage of rename operation with an example.

b) Write down any two major responsibilities of a database administer.

c) Define irreducible sets of dependencies.

d) Write short notes on the following

i) Mandatory access control

ii) Missing information

OR

Discuss join dependencies and fifth normal form and explain why 5 NF?

Unit - V

5. a) What is data tuning?

b) What are two pitfalls (problems) of lock-based protocols?

c) Distinguish between sparse index and dense index.

d) Define a transaction with a neat sketch discuss the states a transaction can be in then discuss the following with suitable examples:

i) A read only transaction.

ii) A read write transaction.

iii) An aborted transaction.

OR

What is Hashing? Explain the distinction between closed and open hashing. Discuss the relative merits of each technique in database application.

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