Roll No ....

MCIT - 105
M.E./M.Tech., I Semester
Examination, June 2013
Advance DBMS

Time : Three Hours

Maximum Marks : 70

Note: 1. Attempt any five questions.
2. Each question carry equal marks.

1. a) Explain various components and DBMS and discuss the candidate key, primary key, Super key, composite key and alternate key.

   b) Draw an E-R diagram for a hospital with a set of patients and set of doctors, with each patient a log of the various conducted tests are also associated.

2. a) What do you mean by normalizations? Explain BCNF and 3NF with suitable examples.

   b) What do you mean by decomposition of a relation? Consider the relational schemes :
   R (A, B, C, D, E, F) and functional dependencies:
   $A \rightarrow BC, C \rightarrow A, D \rightarrow E, F \rightarrow A, E \rightarrow D$
   as the decomposition of R into : R_1 (A, C, D), R_2 (B, C, D) and R_3 (E, F, D) loss less?

3. a) What do you mean by Query processing and optimization? And discuss the tools and techniques for query processing.

6 A

   b) What do you mean by Data warehouse? Discuss various schemes data warehouse.

4. a) Discuss the object oriented database and how specializations and generalization will work in object oriented database?

   b) Define the concept of aggregation. Give any two examples to illustrate the use of this concept.

5. a) Explain image and multimedia databases. Give the proper example of R-tree.

   b) How content based retrieval will work? Give suitable example.

6. a) Describe the term MVD in the context of relational database management system with the help of suitable example.

   b) Consider the relation R (A, B, C, D, E) with the set of functional dependencies: $F = \{A, B \rightarrow C, D \rightarrow E, A \rightarrow D\}$
   i) As (A, B) is a candidate key? Justify.
   ii) As R is in 3NF or BCNF. Justify.

7. a) Describe the procedure for accessing database through the web.

   b) Discuss the unary and binary operators in relational algebra with suitable example.

8. Write short notes on following :
   i) Data redundancy and consistency
   ii) Distributed databases
   iii) Integrity constraints
   iv) Data models.