Roll No ....

MCIT - 105

M.E./M.Tech., I Semester
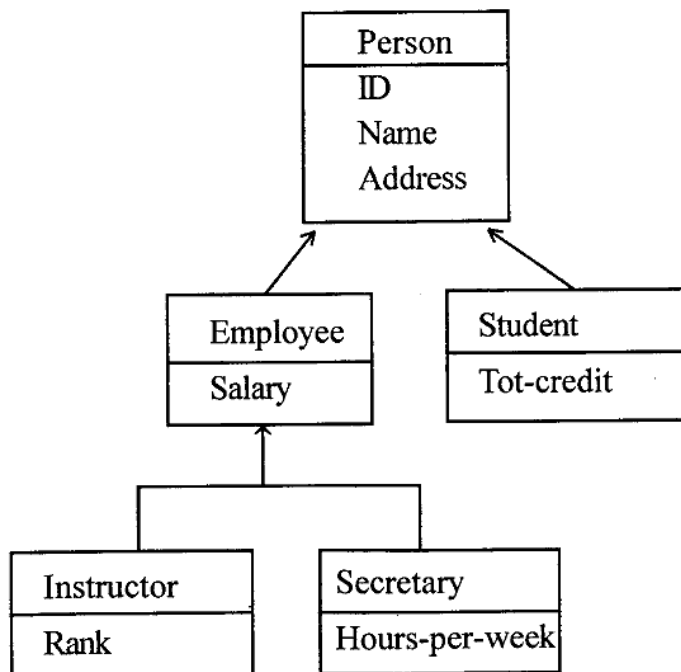
Examination, December 2014

Advanced DBMS

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks.

1. a) Explain the difference between two tier and three tier architectures. Which is best suited for web applications? Why?   7

   b) Design a generalization-specialization hierarchy for a motor vehicle sales company. The company sell m/cycle, cars, vans and buses. Justify your placements of attributes at each level of hierarchy. Explain why they should not be placed at a higher or lower level.   7

2. a) Compute the closure of the following set F of functional dependencies for relation schema r(A, B, C, D, E)

   $A \rightarrow BC$

   $CD \rightarrow E$

   $B \rightarrow D$

   $E \rightarrow A$ 7

   b) Give an example of a relational schema R and a set of dependencies such that R is in BCNF but not in 4NF.   7

3. a) What is the effect on the cost of merging runs if the number of buffer blocks per run is increased, while keeping overall memory available for buffering runs fixed?   7

b) Explain the difference between data replication in a distributed system and the maintenance of a remote backup site. 7

4. a) Why is it not desirable to force users to make an explicit choice of a query processing strategy? Are there cases in which it in desirable for users to be aware of the costs of competing query processing strategies? Explain your answer. 7

b) Explain briefly: 7
   i) Replication ii) Fragmentation

5. a) How does the concept of an object in the object oriented model differ from the concept of an entity in the entity relationship model? 7

b) Give a brief note on color Histograms. 7

6. Consider E-R diagram given which control specializations, using sub types and sub tables. 14

a) Give an SQL schema definition of ER diagram.

b) Give SQL query to find names of all people who one not secretaries.

c) Give SQL query to print the names of people who are neither employees nor students.

d) Can you create a person who is an employee and a student with schema you created? Explain how or explain why it is not possible.

7. a) Explain R Tree and Quad Trees? 7

b) What are Web databases? How databases are accessed through web. 7

8. Write short note: 14
   i) Generalization
   ii) Aggregation
   iii) Normalization
   iv) Fragment transparency

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