R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, October/November - 2016
DATABASE MANAGEMENT SYSTEMS
(Common to CSE, IT)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART - A   (25 Marks)

1.a) List the properties of ER diagram. [2]
  b) Explain the three levels of abstraction. [3]
  c) Explain integrity constraints over relations. [2]
  d) Create a table with employee details like eno, ename, bdate, address, dno, age, phone number. List the name. eno, dname and phone number of the employee who are also the managers of the respective departments. [3]
  e) What is functional dependency? [2]
  f) How can we identify that the relation is in 2NF? [3]
  g) Write about transaction states. [2]
  h) What are ACID properties? Explain. [3]
  i) What is an index? Give an example. [2]
  j) What are the advantages of using tree structured indexes? [3]

PART - B   (50 Marks)

2.a) What is a data model? What are the different data models? Explain E-R model and relation model briefly.
  b) Explain database users, user interfaces, DBA and functions of a DBA.   [5+5]
OR
3.a) What are the application programs? Explain database access for application programs.
  b) What is null attribute? With suitable diagram explain weak and strong entity set.
                                                                              [5+5]

4.a) Discuss in detail about the properties of relation algebra.
  b) How we can convert relationship sets with key constraints into tables? Explain.
                                                                              [5+5]
OR
5.a) Write short notes on difference, union, rename and Cartesian product operations in relational algebra.
  b) How we can translate E-R diagram with aggregation? Explain.   [5+5]

6.a) Explain different normal forms based on functional dependencies.
  b) Explain about dependency preserving decomposition.   [5+5]

OR

7.a) Explain BCNF. Give an example.
  b) What are the steps to be followed to convert a relation in 3NF to BCNF?   [5+5]

8.a) Explain ARIES in detail.
  b) How the lock manager implements lock and unlock requests? Explain.   [5+5]

OR

9.a) How the concurrency control is done in B+ trees? Explain.
  b) What is schedule? Explain about serial and non serial schedule.   [5+5]

10.a) What is a composite search key? What are the pros and cons of composite search keys?
   b) What are the performance implications of disk structure? Explain.   [5+5]

OR

11.a) What are the different RAID levels? Explain.
   b) Compare linear hashing and extendable hashing.   [5+5]

--ooOoo--