Bachelor in Information Technology (BIT)

Term-End Examination

December, 2007

CSI-20 : DATABASE MANAGEMENT SYSTEMS

Time : 2 Hours   *Maximum Marks : 60*

Note :   *There are **two** Sections in this paper. Section A is **compulsory** and carries 30 marks. Section B consists of four questions. Attempt any **three** questions from Section B.*

SECTION A

1.   In a hierarchical model   *1*
   (a)   data of parent record does not apply to child
   (b)   many to many relationship cannot be expressed directly or indirectly
   (c)   hierarchy can be represented by using graphs
   (d)   one to one relationship cannot be expressed directly

2.   If an entity can belong to only one lower level entity then the constraint is   *1*
   (a)   disjoint
   (b)   single
   (c)   partial
   (d)   overlapping

3.   After the execution of final statement, a transaction will be in which state ?   *1*
   (a)   Active
   (b)   Committed
   (c)   Partially committed
   (d)   Failed

4.   Database administrator does ***not***   *1*
   (a)   design conceptual schema
   (b)   create user groups
   (c)   do performance tuning
   (d)   decide about security scheme

5. Use of UNIQUE while defining an attribute of a table in SQL means that the attribute values

(a) are distinct values

(b) are same as primary key

(c) cannot have NULL

(d) are both distinct and NOT NULL

1

6. Log in DBMS is used for

(a) Error detection

(b) Recovery

(c) Concurrent updates

(d) All the above

1

7. The normal form that is *not* necessarily dependency preserving is

(a) 2NF

(b) 3NF

(c) BCNF

(d) 4NF

1

8. Which of the following is *not* a component of database management system ?

(a) Embedded language

(b) Query processor

(c) Data dictionary

(d) Data definition language

1

9. The cost of reading and writing temporary files while evaluating a query can be reduced by

(a) building indices

(b) pipelining

(c) views

(d) join ordering

1

10. Advantage of a client server database system is that it allows

(a) use of an old mainframe

(b) scalable complex system

(c) enforcement of integrity

(d) moderate performance

1

11. (a) What is transaction commit and rollback ? How are they related to recovery ? Explain with the help of an example. *5*

(b) "Is the secondary index more advantageous than primary index ?" Justify your answer with the help of an example. *3*

(c) Describe the following : *4×3=12*

(i) Data Independence

(ii) Shared and Exclusive locks

(iii) Integrity constraints

(iv) Schedule

SECTION B

*There are four questions in this section. Attempt any **three** questions out of these.*

12. (a) What are the issues relating to the query processing in mobile database technologies ? Explain with the help of an example. *5*

(b) Give five differences between relational databases and object databases. *5*

13. (a) What is trivial dependency ? Explain with example. *5*

(b) Describe the problems related to concurrent execution of transactions. What is the support in SQL for isolation levels ? *5*

14. (a) What is a view in the context of RDBMS ? What are the advantages of using views ? How are the views created ? How are they related to security ? Explain with the help of an example. *7*

(b) Compare two-tier database architecture with three-tier architecture. *3*

15. Draw an ER diagram for an IT organisation. This organisation keeps details related to the employees, their dependents, the projects given to the employees department-wise. At any time a employee can handle more than one project but of same department. List all the entities, attributes and relationships. Give assumptions, if any. *10*