

**Bachelor in Information Technology (BIT)**  
**Term-End Examination**  
**December, 2007**

**CSI-20 : DATABASE MANAGEMENT SYSTEMS**

*Time : 2 Hours*

*Maximum Marks : 60*

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**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.*

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**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 1
- (a) are distinct values
  - (b) are same as primary key
  - (c) cannot have NULL
  - (d) are both distinct and NOT NULL
6. Log in DBMS is used for 1
- (a) Error detection
  - (b) Recovery
  - (c) Concurrent updates
  - (d) All the above
7. The normal form that is *not* necessarily dependency preserving is 1
- (a) 2NF
  - (b) 3NF
  - (c) BCNF
  - (d) 4NF
8. Which of the following is *not* a component of database management system ? 1
- (a) Embedded language
  - (b) Query processor
  - (c) Data dictionary
  - (d) Data definition language
9. The cost of reading and writing temporary files while evaluating a query can be reduced by 1
- (a) building indices
  - (b) pipelining
  - (c) views
  - (d) join ordering

10. Advantage of a client server database system is that it allows 1
- (a) use of an old mainframe
  - (b) scalable complex system
  - (c) enforcement of integrity
  - (d) moderate performance
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