

Bachelor in Information Technology (BIT)**Term-End Examination****June, 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. A single database may be accessed from many terminals. We are referring to 1
 - (a) concurrent database updates
 - (b) transaction oriented updates
 - (c) subroutine based updates
 - (d) multiuser database updates

2. Dependency graph is a data structure used for checking 1
 - (a) Livelock
 - (b) Deadlock
 - (c) Serializable schedule
 - (d) End of transaction

3. System logs are used to recover from failure of 1
 - (a) Log
 - (b) Media
 - (c) System
 - (d) Operating system

4. A DBA does *not* define 1
 - (a) Security constraints
 - (b) Damage control policy
 - (c) Performance factors
 - (d) Conceptual schema

5. Which one is *not* possible for a view ? 1
- (a) Formatted data
 - (b) Limited data
 - (c) Data updation for view based on multiple tables
 - (d) Complex query in simpler form
6. Relational Model does *not* involve 1
- (a) Security
 - (b) Integrity
 - (c) Database schema
 - (d) Representation of metadata
7. Major problem of a file management system is 1
- (a) lack of flexibility
 - (b) logical data independence
 - (c) data consistency
 - (d) physical data independence
8. Data independence means that an application is immune to changes in 1
- (a) storage file formats
 - (b) changes in indexes
 - (c) data coding formats
 - (d) All of the above
9. A checkpoint is a 1
- (a) Security mechanism
 - (b) Recovery mechanism
 - (c) Concurrency control mechanism
 - (d) None of the above
10. The command SELECT COUNT (*) FROM RESULTS will count the number of 1
- (a) distinct tuples in RESULTS relation
 - (b) all tuples in RESULTS relation
 - (c) will result in error
 - (d) None of the above

11. (a) What is a timestamp ? How does a system generate a timestamp ? 5
- (b) List five significant differences between a file processing system and a DBMS. 5
- (c) Describe the following terms in context of RDBMS : 10
- (i) Cartesian product and Division operator
 - (ii) Locking mechanism
 - (iii) Advantages of DDBMS
 - (iv) Entity integrity and Referential integrity

SECTION B

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

12. (a) What is the difference between specialization and generalization ? Discuss two main types of constraints on specialization and generalization. 5
- (b) What are the main differences between designing a relational database and an object database ? 5
13. Draw an ER diagram of a library. The members of the library can be the students, faculty or corporates. At one time limited number of books are issued to the members. The books are issued only for a limited duration. List all the entities and relationships. Also give all the assumptions made. 10
14. (a) What are the ACID properties ? Explain the usefulness of each. 5
- (b) During execution, a transaction passes through several states until it finally commits or aborts. List all possible sequences of states through which a transaction may pass. Explain why each state transition may occur. 5
15. (a) Define 2NF and 3NF. Explain each with suitable examples. 5
- (b) Why are certain functional dependencies called trivial functional dependencies ? 5