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END SEMESTER EXAMINATION, NOVEMBER-2018

Semester : 5th

Subject Code : CO-501

DATABASE MANAGEMENT SYSTEMS

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. *All* the questions of PART-A are compulsory.
2. Answer any *five* questions from PART-B.

PART - A

Marks - 25

1. Fill in the blanks : 1×10=10
 - (a) High level data model (E-R model) is based on the concepts of _____, _____ and _____.
 - (b) A _____ is a collection of concepts used to describe a database.

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- (c) The three schema architecture consists of _____, _____ and _____ schema.
- (d) When one column of a table refers to the values in another column of the same table, it introduces a _____ integrity constraint.
- (e) A functional dependency is the relationship between two _____.
- (f) BCNF stands for _____.
- (g) ACID in context of transaction properties stands for _____, _____, _____ and _____.
- (h) The term serializability is related to _____.
- (i) Entity set that do not have a primary key is a _____ entity set.
- (j) Granting and revoking privilege is the function of the _____.

2. Write true or false : 1×10=10

- (a) Program data independence is associated with database approach.

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- (b) Query optimization is a part of the database system environment.
- (c) A database table can be updated using the update view command.
- (d) The purpose of normalization is to minimize redundancy.
- (e) The SELECT command is used to query the database.
- (f) If a relation is in 3NF, then it is also in BCNF.
- (g) Distributed database is stored in more than one location.
- (h) In an E-R diagram multivalued attribute is represented by oval.
- (i) A record in a relational database is termed as tuple.
- (j) Replication is associated with centralised database.

3. Choose the correct answer : 1×5=5

- (a) _____ is the snapshot of the data in the database at a particular point of time.

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PART - B

Marks - 45

- (b) A set of one or more attributes taken collectively to identify a record is
- (i) Super key (ii) Primary key
- (iii) Candidate key (iv) Alternate key
- (c) _____ makes the transaction permanent in the database.
- (i) View (ii) Commit
- (iii) Rollback (iv) None of these
- (d) Authentication means
- (i) restricting access to the system
- (ii) controlling access to database
- (iii) Both (i) and (ii) above
- (iv) None of these
- (e) Which form is based on the concept of functional dependency ?
- (i) 1NF (ii) 2NF
- (iii) 3NF (iv) 4NF

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4. (a) State the differences between traditional file oriented approach and database approach. 4
- (b) Illustrate the different types of interfaces available in DBMS. 5
5. (a) Discuss about the different types of database users. 5
- (b) Define primary key and foreign key. 2+2=4
6. (a) Draw an E-R diagram to show a binary and a ternary relationship. 2+3=5
- (b) State the basic structure of a SQL query. 2
- (c) Who is a DBA ? 2
7. (a) Define 3NF and BCNF. 2+2=4
- (b) Explain the desirable properties of a transaction. 5
8. (a) Explain full and partial functional dependency. 4

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- (b) What is encryption in context of database security ? 5
9. (a) State the functions of DBA in relation to database security. 4
- (b) Explain how locking technique is a solution to solve problems arising from improper concurrency control. 5
10. (a) Explain the three schema architecture with a neat diagram. 4
- (b) Discuss the entity integrity and referential integrity constraint. 3
- (c) Define logical data independence. 2
11. (a) What is a distributed database ? State its advantages. 2+3=5
- (b) Explain the terms data fragmentation and replication in context of distributed databases. 4
12. (a) Explain the different transaction states with a state transition diagram. 5
- (b) "DBMS's can be classified into different types based on different criteria." Explain. 4