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CSI-14

Bachelor in Information Technology (BIT)

00516

Term-End Examination

December, 2010

CSI-14 : DATA ANALYSIS AND DATABASE DESIGN

Time : 3 hours *Maximum Marks : 75*

Note : *There are two sections in this paper. **All** questions from **Section-A** are **compulsory**. Answer any **three** questions from **Section-B**. All Multiple choice questions carry **one** mark each.*

SECTION - A

1. Which of the following Data base language is used for data modification ? **15x1=15**

   (a) DDL (b) DML

   (c) SQL (d) 4GL

2. A functional dependency is a relationship between _____.

   (a) Keys (b) Attributes

   (c) Tuples (d) Joins

3. The two phase commit Protocol may introduce :

   (a) Blocking (b) Starvation

   (c) Deadlock (d) All of the above

4. Which of the following is an aggregate function in SQL ?

(a) agg (b) avg

(c) sagg (d) ordered by

5. The overall logical structure of a relational data base is usually represented by :

(a) Data Flow diagram

(b) ER diagram

(c) Functional Model

(d) Object Model

6. The table generated on compilation of DDL is stored in _____

(a) Meta data

(b) Data file

(c) Data dictionary

(d) Data flow diagram

7. In oracle, trigger body cannot include _____ Statement.

(a) UPDATE (b) ALTER

(c) CURSOR (d) USERS

8. The level of abstraction that describes only part of the entire database is called _____ level.

(a) View (b) Conceptual

(c) Procedural (d) Physical

9. An association of several entities in a ER model is called _____ .

(a) Tuple (b) Record
(c) Relationship (d) Field

10. The overall design of a database is called _____ of the database.

(a) Scheme (b) Structure
(c) Screen (d) View

11. The collection of information stored in a database at a particular moment is called _____ of a database.

(a) View (b) Instance
(c) Scheme (d) Snap

12. Tuple variables in SQL are defined in _____ clause.

(a) Select (b) From
(c) Where (d) All of the above

13. A deadlock exists in the system if and only if the wait for graph _____ .

(a) Has a path from first node to last node
(b) Has no path from first node to last node
(c) Contains a cycle
(d) Contains a non reachable node from first node

14. Which of the following operations can be used for constructing complex entities ?

(a) Sum (b) Union
(c) Aggregation (d) Collection

15. In relational database, a referential integrity constraint is specified with the help of _____key.

(a) Foreign (b) Primary

(c) Secondary (d) Candidate

16. Differentiate between each of the following : 5x3=15

(a) SQL and DML

(b) Intersection and Difference

(c) Network and Relational Database

(d) Logical and Physical View

(e) Primary and Foreign Key

SECTION-B

Answer ***any three*** questions from this section : Each question carries 15 marks.

17. Consider the following relations with the primary key underlined :

TRAIN (Train-No, Train-name, start, Destination, Rate-per-km)

TICKET (PNR-No, Start, Destination, fare)

PASSENGER (P-Name, P-Age, gender, PNR-NO, P- Address)

Note :- Make Assumptions, if necessary.

(a) Write DDL statements for implementation of the above database. Clearly indicate the primary and foreign key. 6

(b) Write the following queries in relational algebra OR SQL. 9

(i) List the name of passengers who are travelling from the start to the destination station of the train (Train number = 2273).

(ii) Insert a new train named Jan Shatabdi. Its number is 3271 and Rate per kilometer is one rupee.

(iii) Cancel a ticket with PNR number MP2713QR31.

18. (a) What are the insertion, deletion and update anomalies that occur in a database ? Explain the method to remove these anomalies from tables. 5

(b) What is a view? Explain with the help of an example. Also, specify the conditions that a view must meet in order to allow updates. 5

(c) What are two advantages and one disadvantage of data replication ? Explain the classification of replication. 5

19. (a) With the help of an example, prove the statement "Every relation which is in 3NF is not in BCNF but the converse is true". 6

(b) Discuss the three level architecture of DBMS. Explain how does it lead to physical and logical data independence. 6

(c) What are assertions ? How are they different from the triggers ? 3

20. A relational database is to be created for recording the information about entities and relationship of CRICKET TEAM MANAGEMENT SYSTEM. It should contain the information about. The cricket teams, players, sponsors, player's statistics, etc. Normally teams belongs to different countries. A team has a number of players, but not all of them participate in each match. It is desired to keep track of the players participating in each game of each team and the result of the game.

Note: Make assumptions, if necessary.

(a) Draw an ER diagram with all attributes, keys, entities and relationships. 6

(b) Derive tables from the ER diagram. 9