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B.Sc./B.C.A. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2013

Fourth Semester

Core Course—DATABASE MANAGEMENT SYSTEM

(Common for B.C.A. and B.Sc. Computer Applications (Three Main))

Time : Three Hours

Maximum Weight : 25

Part A

Answer all questions.
Each bunch of four questions carries a weight of 1.

I. 1. Database Management systems are intended to :

    (a) Eliminate data redundancy.

    (b) Establish relationship among records in different files.

    (c) Maintain data integrity.

    (d) All of the above.

2. Which of the following field in a student file can be used as a primary key?

    (a) Class.   (b) Social Security Number.

    (c) GPA.   (d) Major.

3. A command that lets you change one or more fields in a record is :

    (a) Insert.   (b) Alter.

    (c) Look up.   (d) None of the above.

4. A row in a database can also be called domain :

    (a) True.   (b) False.

II. 5. Cartesian product in relational algebra is :

    (a) A unary operator.   (b) A binary operator.

    (c) A Ternary operator.   (d) Not defined.

6. The protocol in which all locking operations precede the first unlock operation in the transaction is known as :

    (a) Basic 2PL.   (b) Strict 2PL.

    (c) Static 2PL.   (d) Rigordus 2PL.

7. If $x \geq y$, then $X \to Y$.

    (a) Augmentation.   (b) Transitive Rule.

    (c) Reflexive rule.   (d) Additive Rule.

Turn over

8. The ascending order of a data hierarchy is :

   (a) bit-byte-record-field-file-database.

   (b) byte-bit-field-record-file-database.

   (c) bit-byte-field-record-file-database.

   (d) bit-byte-file-record-field-database.

III. 9. ——— are the people whose jobs require access to the database for querying, updating and generating reports, the database primarily exists for their use.

10. A ——— index has an index entry for every search key value in the data file.

11. A transaction reaches its ——— when all of its operations that accesses the database have been executed successfully and the effect of all the operations have been recorded in the log.

12. ——— is used to represent a row in a relational database table.

IV. 13. The ——— command is used to take back the privileges given to a user.

14. Overall logical structure of a database can be expressed graphically by ———.

15. The ——— function in SQL returns the number of tuples or values as specified in a query.

16. ——— represents the correspondance between various data elements.

$$(4 \times 1 = 4)$$

Part B

Answer any five of the following.
Each question carries a weight of 1.

17. What is data independence ?

18. What is meant by an entity, entity type and an entity set ?

19. What is EQUIJOIN ?

20. What is Functional Dependency ?

21. What is meant by granding a Privilege ?

22. State Boyce-Codd Normal Form.

23. Explain the use of ALTER command of SQL.

24. What is Lost Update problem ?

$$(5 \times 1 = 5)$$

Part C

Answer any four of the following.
Each question carries a weight of 2.

25. What are the desirable properties of a transaction ?

26. What are the basic data types of available for attributes in SQL ?

27. Explain the three-schema architecture.

28. How does tuple relational calculus differ from domain relational calculus ?

29. Give the syntax of the following commands / clauses with suitable examples :—

  (a) UPDATE.   (b) BETWEEN.

  (c) EXISTS.   (d) INSERT.

30. Discuss primary indexes.

                          $(4 \times 2 = 8)$

Part D

Answer any two of the following.
Each question carries a weight of 4.

31. Write notes on :

  (a) ER diagrams.

  (b) Views in SQL.

32. Discuss data normalization with first three normal forms.

33. Explain the various relational algebra operations.

                          $(2 \times 4 = 8)$