B.C.A.. DEGREE EXAMINATION APRIL 2024
FOURTH SEMESTER

COURSE   :   MAJOR CORE
PAPER   :   FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEMS
SUBJECT CODE :   19CS/MC/FD45
TIME   :   3 HOURS   MAX. MARKS: 100

SECTION A

Answer all the questions: **(20 X 1=20)**
Choose the best answer:

1. The _____ is used to specify the internal schema
   a) Structured Definition Language   b) Storage Definition Language
   c) Structured Data Language   d) Static Definition Language

2. A _____is typically used to loop over the tuples in a query result.
   a) cursor   b) query   c) variable   d) record

3. The aggregate function applied to a group of sets of tuples using the _____ clause.
   a) group by   b) group
   c) group set   d) group attribute

4. _____ is not a PL/SQL unit.
   a) Table   b) Type   c) Trigger   d) Package

5. If a functional dependency is reflexive, B is a subset of A and A is the set of attributes, then _____.
   a) B→A holds   b) A→B holds
   c) AB→C holds   d) None of the mentioned

6. Multiple users can access databases—and use computer systems—simultaneously because of the concept of _____.
   a) multiprogramming   b) Program   c) syntax   d) Processing

7. Specialization is the process of defining a set of subclasses of an entity type; this entity type is called the _____ of the specialization.
   a) Superclass   b) Subclass   c) Class   d) Constraint

8. Referential integrity is specified via the _____ clause
   a) FOREIGN KEY   b) PRIMARY KEY   c) NULL KEY   d) REFERENCE KEY

9. A _____ of the database satisfies the constraints specified in the schema as well as any other constraints on the database that should hold
   a) state   b) End state   c) Stable state   d) consistent state

10. _____ is based on the concept of transitive dependency.

    a) 1NF   b) 2NF   c) 3NF   d) 4NF

Fill in the blanks:

11. A _____ in SQL terminology is a single table that is derived from other tables.
12. The basic set of operations for the relational model is the _____.
13. A _____is a collection of related data.
14. Pattern matching operators are _____ and _____
15. The data in Database at a particular moment in time is called as _____.

16. _____generally, refers to the suppression of details of data organization and storage, and the highlighting of the essential features for an improved understanding of data.
17. A relationship type of degree two is called _____
18. The entity integrity constraint states that no primary key value can be _____.
19. A binary lock can have two states or values: _____ and _____.
20. The size of a data item is called its_____ during transactions.

SECTION B

Answer all the questions   **(5 x 2 = 10)**

21. What are the Characteristics of Database approach**?**
22. Differentiate between a candidate key and a super key.
23. Write any two Features of SQL
24. What is the use of SQL?
25. What is a concurrent transaction?

SECTION C

Answer any EIGHT questions   **(8 x 5 = 40)**

26. Describe the advantages of Database approach.
27. State and draw the Three-Schema Architecture and Data independence.
28. Explain and draw the ER schema diagram for the COMPANY database.
29. Discuss the Aggregate Functions used in SQL
30. Write short notes on Unary relational operations
31. Explain the Embedded SQL programming with an example.
32. Describe BCNF Schemas with an example.
33. Discuss the atomicity, durability, isolation, and consistency preservation properties of a database transaction.
34. Summarize the Types of Locks.
35. Describe the three phases of the ARIES recovery method.

SECTION D

Answer any THREE questions   **(3 x 10 = 30)**

36. Discuss Centralized and Client/Server architectures.
37. Explain ER-to-Relational Mapping.
38. Discuss the three DML commands used to modify the database.
39. Explain the basic structure followed in PL/SQL.
40. Discuss recovery concept and shadow paging.

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