STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2019 – 2020 and thereafter)
SUBJECT CODE: 19CS/MC/FD45

B.C.A.. DEGREE EXAMINATION APRIL 2022
FOURTH SEMESTER

COURSE : MAJOR CORE
PAPER : FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEMS
TIME : 3 HOURS MAX. MARKS: 100

SECTION A

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

1. _____stores metadata about the structure of the database, in particular the schema of the database.
   a. Data files b. Indices c. Data dictionary d. Buffer
2. _____are unsophisticated users who interact with the system by invoking one of the application programs that have been written previously.
   a. Application programmers b. Sophisticated users
   c. Naive users d. Specialized users
3. _____ represents entity sets.
   a. Ellipses b. Rectangles c. Diamonds d. Lines
4. A _____is a set of one or more attributes that, taken collectively, allow us to identify uniquely an entity in the entity set.
   a. Super key b. Primary key c. Foreign key d. Candidate key
5. Using Relational Algebra the query that finds customers, who have a balance of over 1000
   a. $\pi_{Customer\_name}(\sigma_{balance>1000}(Deposit))$
   b. $\sigma_{Customer\_name}(\pi_{balance>1000}(Deposit))$
   c. $\pi_{Customer\_name}(\sigma_{balance>1000}(Borrow))$
   d. $\sigma_{Customer\_name}(\pi_{balance>1000}(Borrow))$
6. The expression _____produces a relation containing those tuples in R but not in S.
   a. R + S b.R-S c. R x S d. R π S
7. The language used in application programs to request data from the DBMS is referred to as the _____.
   a. DML b. DDL c. TCL d. DCL
8. Count function in SQL returns the number of
   a. Values b. Distinct values c. Groups d. Columns
9. A transaction completes its execution is said to be
   a. Saved b. Loaded c.Rolled d. Commited
10. A system is in a _____ state if there exists a set of transactions such that every transaction in the set is waiting for another transaction in the set.
    a. Idle b. Waiting c.Deadlock d.Ready

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Fill in the blanks

11. In the architecture of a database system external level is the _____.
12. _____is a collection of conceptual tools for describing data, data relationships, data semantics, and data constraints.
13. _____expresses the number of entities to which another entity can be associated via a relationship set.
14. An entity set that does not have a primary key is _____entity set.
15. A_____ of an entity set is a minimal super key.
16. Cartesian product in relational algebra is _____ Operator.
17. _____ is a block-structured language
18. A relation schema *R* is in _____normal form , if the domains of all attributes of *R* are atomic.
19. A _____ is a single logical unit of work that accesses and possibly modifies the contents of a database.
20. _____deals with interleaved execution of more than one transaction.

SECTION B

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

21. Mention the categories of data model.
22. List the operations in relation model.
23. Write the syntax for update and delete command in SQL.
24. Write the blocks of PL/SQL.
25. Write about serializability in transaction processing.

SECTION C

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

26. Write about levels of data independence.
27. Distinguish the activities of Actors on the Scene and Workers behind the Scene.
28. Explain about referential integrity constraint.
29. Give suitable example and explain EER diagram.
30. Explain about the basic retrieval queries in SQL.
31. Discuss about views and advantage of using views in SQL.
32. Normalize the following table in 1NF and 2NF:

Employee ID	Employee Name	City	Department
101	Amit	Kolhapur	OBIEE,COGNOS
102	Divya	Indore	COGNOS
103	Yodhini	Hydrabad	SIEBEL
104	Amit	Kolhapur	ETL

33. Write the function in PL/SQL for finding the product of two numbers.
34. List the desirable properties of transaction processing.
35. Write about transaction support in SQL.

SECTION D

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

36. Discuss in detail about Client/Server Architecture.
37. Draw the ER diagram for students attendance package system with the following Entities and attributes:
    a. Strong Entity.
    b. Weak Entity.
    c. Cardinality.
    d. Multi valued Attribute.
    e. Composite attribute.
38. Discuss about the Join operation in SQL with suitable example.
39. Explain in detail about triggers in PL/SQL with suitable example.
40. Discuss about the Two Phase Locking in concurrency control technique.

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