Reg. No.															

B.Tech. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

18CSC267J – DATABASE MANAGEMENT SYSTEMS

(For the candidates admitted from the academic year 2020-2021 & 2021-2022)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours | Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

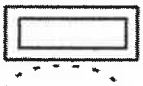
Answer **ALL** Questions

	Marks	BL	CO	PO

1. At a particular moment the data entered into a database is called _____. 1 1 1 1

   (A) Data entry (B) Instance
   (C) Domain (D) Insert

2. Which of the following symbol represent derived attribute? 1 1 2 3

   (A)  (B) 
   (C)  (D) 

3. _____ is called minimal subset of super key. 1 1 2 1

   (A) Primary key (B) Foreign key
   (C) Composite key (D) Candidate key

4. Application program object code and DML compiler provides the input to _____ for executing the query. 1 1 1 1

   (A) Query evaluation engine (B) DML interpreter
   (C) Parser (D) Disks

5. Which option in view is to ensure that all update and insert satisfy the condition(s) in the view definition? 1 1 4 3

   (A) Uncheck (B) With check
   (C) Check (D) Where

6. PL/SQL delimiters _____ symbol is exponentiation operator. 1 1 4 3

   (A) ~= (B) <>
   (C) ** (D) __

7. In order to add attributes, to an existing table, the command used is 1 1 4 1

   (A) Alter (B) Modify
   (C) Update (D) Create

8. Where sub queries cannot be used? 1 1 4 1

   (A) Field names in the select statement (B) Where clause only in the select statement
   (C) Where clause in select as well as DML statements (D) The from clause in the select statement

9. If a relation R is said to be in third normal form then it is also be in _____. 1 1 5 2
   (A) First normal form (B) Second normal form
   (C) Third normal form (D) BCNF

10. In the relation R = ABCDEF, find the attribute closure of 'A'. 1 1 5 2
    F = {A→B, B→D, C→D, E→F}
    (A) ABD (B) BDF
    (C) BEF (D) ACE

11. Which of the following is not a decomposition property? 1 1 5 2
    (A) Lossless join (B) Dependency preservation
    (C) Redundancy avoidance (D) Armstrong axioms

12. For a database relation R (P, Q, S, T) where the domains of P, Q, S, T include only atomic values, only the following functional dependencies and those that can be inferred from them hold P→S, Q→T, this relation is 1 2 5 2
    (A) 2NF and not 3NF (B) 1NF and not 2NF
    (C) 3NF (D) 4NF

13. How many steps are involved in fetching the data from the database in query processing? 1 1 5 1
    (A) 1 (B) 2
    (C) 3 (D) 4

14. As soon as the queries are translated, they are evaluated and various _____ transformations are performed. 1 1 5 1
    (A) Query-realizing (B) Query optimizing
    (C) Query Deoptimizing (D) Query deletion

15. Which of the following schemas does define a view of views of the database for particular users? 1 1 5 1
    (A) Internal schema (B) Conceptual schema
    (C) Physical schema (D) External schema

16. B-trees eliminated the redundant storage of 1 1 5 1
    (A) Search keys (B) Indices
    (C) Buckets (D) Bucket skew

17. In transaction the following state refers to where the last statement of transaction been executed 1 1 6 1
    (A) Commit (B) Partial commit
    (C) Failed (D) Abort

18. When transactions cannot be completed due to internal error, it refers to _____. 1 1 6 1
    (A) Logical error (B) System error
    (C) Disk error (D) Total error

19.	Consider the log record shown below where undo and redo operation applied. What would be result? <TO, START> <TO, A, 1000, 950> <TO, B, 2000, 2050> <TO, COMMIT> <T1, START> <T1, C, 700, 600>, UNDO (T1), REDO (TO) = ? (A) C = 600 & A = 950, B = 2050 (B) C = 700 & A = 950, B = 2050 (C) C = 700 & A = 1000, B = 2000 (D) C = 700 & A = 1000, B = 2050	1	2	6	2
20.	What does OLTP stand for? (A) Offline transaction processing (B) Online transaction processing (C) Outline traffic processing (D) Outlook transaction processing	1	1	6	1

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	Compare file processing systems with DBMS.	4	3	1	1
22.	Mention any 5 inbuilt functions with suitable SQL queries.	4	3	4	1
23.	Explain the properties of functional dependency.	4	3	5	3
24.	Diagrammatically represent the query processing operation.	4	3	5	3
25.	Explain the types of serializability with suitable examples.	4	3	6	1
26.	Describe about project and select relational algebraic operations with suitable expressions.	4	3	3	2
27.	What is super key and candidate key? Give suitable examples.	4	3	4	2

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	Explain in detail about functional components of database systems.	12	3	1	3
	(OR)				
b.	Construct a ER diagram for the following database and convert into tables. The National Hockey League has many teams. Each team has a name, a city, a coach, a captain, and a set of players each player belongs to only one team, each player has a name, a position, a skill level, and a set of injury records, a team captain is also a player, a game is played between two teams, and has a data and a score.	12	4	2	3
29. a.	Write SQL query for the following table structures: Person (driver_id, name, address) Car (regno, model, year, owner) Accident (report_no, accd_date, location, report_no, damage_amount) (i) Display the total number of people who owned cars that were involved in accidents in the year 2020 (ii) Display the details of accidents location wise (iii) Display the same type of car holders of Mr.John	12	4	4	1

(iv) Display the driver name which includes the characters 'b' and 'e' and they should hold the cars belongs to the type of 'BMW'
(v) Display the number of accidents held from the year 2005 to 2012
(vi) Remove the location field from accident table

(OR)

b.i.	Write a PL/SQL program to find the greatest of 3 number.	6	3	4	1
ii.	Write short note on triggers.	6	3	4	1
30. a.	Explain in detail about 1NF and 2NF with suitable examples.	12	3	5	3

(OR)

b.	Write short note on (i) Armstrong axioms (ii) Closure of attributes	12	3	5	3
31. a.	Explain in detail about query processing and optimization techniques.	12	3	5	3

(OR)

b.	Discuss about hashing techniques with suitable examples.	12	3	5	3
32. a.	Write short note on		3	6	3
	(i) Web databases	6			
	(ii) ACID properties	6			

(OR)

b.	Explain in detail about locking based protocol techniques with suitable examples.	12	3	6	3

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