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B.Tech DEGREE EXAMINATION, DECEMBER 2023

Sixth & Seventh Semester

18CSC303J - DATABASE MANAGEMENT SYSTEMS

(For the candidates admitted during 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** and **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
1.	Which of the following is a feature of the database? (A) No-backup for the data stored (B) User interface provided (C) Lack of Authentication (D) Store data in multiple locations	1	1	1
2.	Which of the following establishes a top-to-bottom relationship among the items? (A) Relational schema (B) Network schema (C) Hierarchical schema (D) non - Relational Schema	1	1	1
3.	A window into a portion of a database is (A) Schema (B) View (C) Query (D) Data dictionary	1	1	1
4.	What is DBMS? (A) DBMS is a collection of queries (B) DBMS is a high-level language (C) DBMS is a programming language (D) DBMS stores, modifies and retrieves data	1	1	1
5.	The Rectangles divided into two parts represents (A) Entity set (B) Relationship set (C) Attributes of a relationship set (D) Primary key	1	1	2
6.	Which of the following indicates the maximum number of entities that can be involved in a relationship? (A) Minimum cardinality (B) Maximum cardinality (C) ERD (D) Greater Entity Count	1	1	2
7.	The entity set person is classified as student and employee. This process is called _____ (A) Generalization (B) Specialization (C) Inheritance (D) Constraint generalization	1	1	2
8.	The relational model is based on the concept that data is organized and stored in two-dimensional tables called _____ (A) Fields (B) Records (C) Relations (D) Keys	1	1	2
9.	`SELECT * FROM employee` What type of statement is this? (A) DML (B) DDL (C) View (D) DCL	1	1	2
10.	All aggregate functions except _____ ignore null values in their input collection. (A) Count(attribute) (B) Count(*) (C) Avg (D) Sum	1	1	3

11.	To remove a relation from an SQL database, we use the _____ command. (A) Delete (B) Purge (C) Remove (D) Drop table	1	1	3
12.	Which of the following is/are TRUE about DDL command? (A) Our data is stored in a table that is described by the schema, thus DDL commands deal with the schema. (B) With the DDL commands, any structural changes can be made to the table, including creation, deletion, and alteration. (C) Both (A) and (B) (D) Neither (A) nor (B)	1	1	3
13.	Tables in second normal form (2NF): (A) Eliminate all hidden dependencies (B) Eliminate the possibility of a insertion anomalies (C) Have a composite key (D) Have all non key fields depend on the whole primary key	1	1	4
14.	Which form simplifies and ensures that there are minimal data aggregates and repetitive groups: (A) 1NF (B) 2NF (C) 3NF (D) All of the mentioned	1	1	4
15.	The_____ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple. (A) Select (B) Join (C) Union (D) Intersection	1	1	4
16.	A table on the many side of a one to many or many to many relationship must: (A) Be in Second Normal Form (2NF) (B) Be in Third Normal Form (3NF) (C) Have a single attribute key (D) Have a composite key	1	1	4
17.	Which of the following is correct according to the technology deployed by DBMS? (A) Pointers are used to maintain transactional integrity and consistency (B) Cursors are used to maintain transactional integrity and consistency (C) Locks are used to maintain transactional integrity and consistency (D) Triggers are used to maintain transactional integrity and consistency	1	1	5
18.	If a transaction does not modify the database until it has committed, it is said to use the _____ technique. (A) Deferred-modification (B) Late-modification (C) Immediate-modification (D) Undo	1	1	5
19.	Which refers to a property of computer to run several operation simultaneously and possible as computers await response of each other (A) Concurrency (B) Deadlock (C) Recovery (D) Backup	1	1	5
20.	____ means that the data used during the execution of a transaction cannot be used by a second transaction until the first one is completed. (A) Consistency (B) Atomicity (C) Durability (D) Isolation	1	1	5

PART - B (5 × 4 = 20 Marks)

Answer **any 5** Questions

		Marks	BL	CO
21.	List the limitations/disadvantages of DBMS.	4	2	1
22.	Explain with diagram the different Mapping Cordinalities	4	2	2

		Marks	BL	CO
23.	What is an Entity? Explain different type of Entities. Define weak entity. Show with example.	4	2	2
24.	List out the aggregation functions briefly explain with SQL syntax	4	1	3
25.	'Boyce-Codd normal form is found to be stricter than third normal form'. Justify the statement.	4	3	4
26.	Analyze about lossless Decomposition	4	4	4
27.	What are the Problems with Concurrent Execution.	4	2	5

PART - C (5 × 12 = 60 Marks)

Answer **all** Questions

		Marks	BL	CO
28.	(a) Explain the different evolution models and discuss the advantages and limitations of each.	12	2	1
	(OR)			
	(b) Explain in detail the components of Data Base system environment			
29.	(a) Draw an E-R diagram for a banking enterprise with almost all components and explain. Describe with suitable example, the constraints of specialization and generalization in ER data modelling.	12	3	2
	(OR)			
	(b) Explain ER model by taking Hospital management. Brief out ER design issues.			
30.	(a) Explain in brief about Subqueries and Correlated queries. What is a Join? Discuss about various joins used in SQL.	12	3	3
	(OR)			
	(b) emp (eno, ename, bdate, title, salary, dno) proj (pno, pname, budget, dno) dept (dno, dname, mgreno) workson (eno, pno, resp, hours) 1. Write an SQL query that returns the employee name, department name, and employee title. 2. Write an SQL query that returns the project name, hours worked, and project number for all works on records where hours > 10. 3. Write an SQL query that returns the project name, department name, and budget for all projects with a budget < $50,000. 4. Write an SQL query that returns the employee numbers and salaries of all employees in the 'Consulting' department ordered by descending salary. 5. Write an SQL query that returns the employee name, project name, employee title, and hours for all works on records			
31.	(a) Exemplify the multi-value dependency in relation. Explain in detail 2NF, 3NF and the fourth normal form-4NF.	12	3	4
	(OR)			
	(b) Determine the closer of the following set of functional dependencies for a relational scheme R(A,B,C,D) and FDs {AB → C, C → D, D → A}. List out the candidate keys of R.Find the highest normal form of the relation.			
32.	(a) Describe the conflicts in concurrent transaction. (4marks) Explain Concurrency Control. What benefit does two phase locking provide? (8marks)	12	2	5
	(OR)			
	(b) What is a deadlock? Narrate the actions that are considered for deadlock detection and the recovery from deadlock			

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