Reg. No.															

B.Tech. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

18CSC209J – DATABASE MANAGEMENT SYSTEMS AND CLOUD INTEGRATION SERVICES

(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. What is the highest level of data abstraction in the database management system? (A) Physical level (B) Logical level (C) View level (D) Hashing	1	1	1	1
2. Which of the following statements are DML statements? (i) Update [table name] set [column name] = VALUE (ii) Delete [table name] (iii) Select * from [table name] (A) (i) and (ii) (B) (i) and (iii) (C) (i), (ii) and (iii) (D) (ii) and (ii)	1	1	1	1
3. _____ is to express database queries and updates. (A) Data definition language (B) Data manipulation language (C) Data control language (D) Transaction control language	1	2	1	1
4. Which of the following database objects gives an alternative name to an object? (A) Synonym (B) Sequence (C) View (D) Index	1	2	1	1
5. The grant statement is used to _____. (A) Confer access (B) Confer authorization (C) Confer authority (D) Confer commands	1	1	2	1
6. Consider the relational schemas section and answer Section relation Course_id Sec_id Semester Year Building B10-101 1 Spring 2010 Painter CS-102 4 Summer 2009 Pack yard EE-201 3 Fall 2010 Watson FIN-301 1 Spring 2011 Richard Select Id, course_id, building from section 's' and teaches 't' WHERE t_year = 2009; and s.course_id = t.course_id Which of the following ID are displayed?	1	2	2	1

Teaches relation

ID	Course_id	Sec_id	Semester	Year
1001	CS-101	1	Fall	2009
1002	EE-201	2	Spring	2010
1003	FIN-301	3	Fall	2009
1004	B10-101	1	Summer	2011

(A) 1003 (B) 1001
(C) Both 1003 and 1001 (D) Error message

7. Which relationship is used to represent a specialization entity? 1 2 3 1
(A) ISA (B) AIS
(C) ONIS (D) WHOIS

8. The entity relationship is represented in E-R diagram is 1 1 3 1
(A) Double diamonds (B) Undivided rectangles
(C) Dashed lines (D) Diamond

9. The union operation automatically eliminates _____ unlike the select cause. 1 1 4 1
(A) Error (B) Bug
(C) Duplicates (D) Correlation

10. Identify the accurate query to "find the average salary in each department" where table name is "instructor" and columns considered are dept_name and salary. 1 1 4 1
(A) Select dept_name, avg(salary) as avg_salary
From instructor group by dept_name;
(B) Select dept_name, avg(salary) as avg_salary
From salary group by dept_name;
(C) Select dept_name, avg(sum) as salary
From salary group by dept_name;
(D) Select dept_name, avg(salary) as avg_salary
From instructor group by salary;

11. The various steps in explicit cursor are _____. 1 1 4 1
(A) Declaring, handling, querying and ending a cursor (B) Defining, handling, querying and closing a cursor
(C) Declaring, opening, fetching and closing a cursor (D) Declaring, handling and closing cursor

12. When condition is valid for which triggers? 1 1 4 1
(A) Table level triggers (B) Row level triggers
(C) Column level triggers (D) Database level triggers

13. By normalizing relations or set of relations, one minimizes _____. 1 1 5 1
(A) Data (B) Fields
(C) Redundancy (D) Database

14. A table is in 3NF if it is in 2NF and it is has no _____. 1 1 5 1
(A) Functional dependencies (B) Transitive dependencies
(C) Trivial functional dependencies (D) Multi valued dependencies

15. Which of the following is not a type of normal form? 1 2 5 1

(A) 1NF (B) 2NF
(C) 3NF (D) 10NF

16. 4NF is designed to code with _____. 1 2 5 1

(A) Transitive dependency (B) Join dependency
(C) Multi valued dependency (D) Key dependency

17. Amazon dynamoDB supports _____, where the numeric attribute's increment and decrement can be done in arrow using just one API call. 1 1 6 1

(A) Real time data processing (B) Microsecond latency
(C) In-memory caching (D) Quick in-plane atomic updates

18. _____ provides SQL-compatible query access across multiple data stores containing structures data, semi structures data, and nested data. 1 1 6 1

(A) No SQL (B) Sequel
(C) PartiQL (D) PL/SQL

19. Expression string have a _____ limit in dynamoDB 1 2 6 1

(A) 1kB (B) 2kB
(C) 4kB (D) 8kB

20. Which architecture will be built on top of SOA? 1 2 6 1

(A) The application architecture (B) The service architecture
(C) The component architecture (D) The OO architecture

PART – B (5 × 4 = 20 Marks)

Marks BL CO PO

Answer **ANY FIVE** Questions

21. Construct SQL query 4 6 1 1

(i) To retrieve supplier_id from both the tables without duplicates
(ii) To retrieve supplier_id from both the tables with duplicates

Suppliers table	
Supplier_id	Supplier_name
1000	Tata
2000	Reliance
3000	Airtel
4000	Joi

Orders table		
Order_id	Order_date	Supplier_id
1	2023-20-02	2000
2	2023-21-02	6000
3	2023-21-02	7000
4	2023-24-02	8000

22. Illustrate LTRIM and RTRIM in string functions in SQL with an example. 4 4 2 1

23. An E-R diagram can be viewed as a graph. What does it mean in terms of the structure of an enterprise schema, when the graph is disconnected? 4 2 3 1

24. Use PL/SQL query to perform SVM of two numbers. 4 3 4 1

25. Write short notes on functional dependency with example. 4 2 5 1

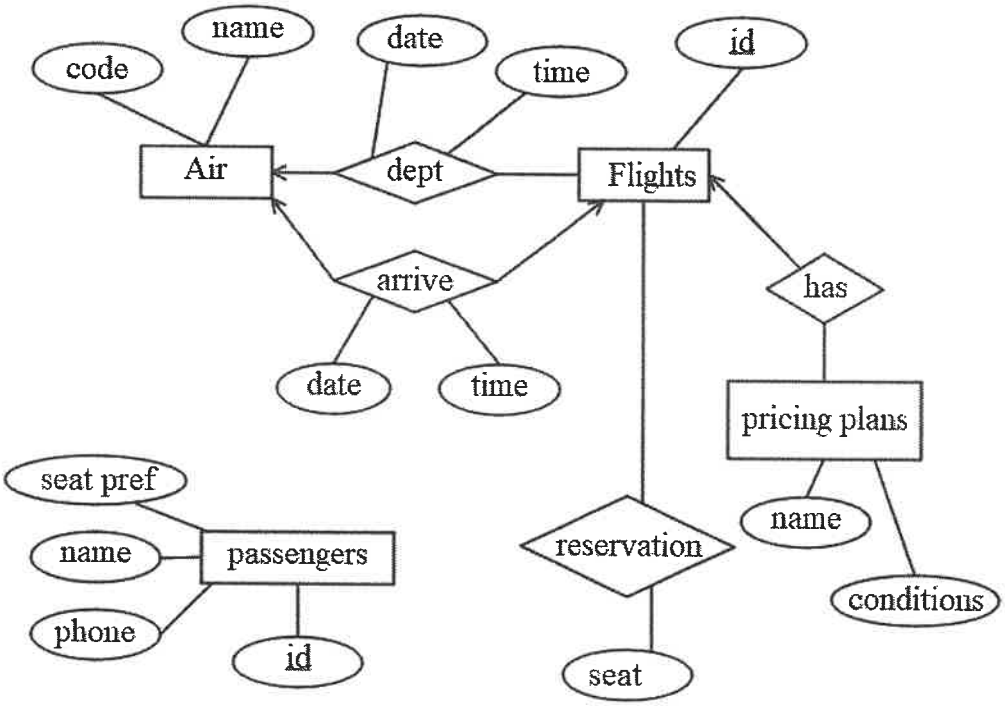
26. Compare query and scan operation in dynamoDB with suitable example. 4 2 6 1

27. Explain subquery in SQL with suitable example. 4 1 4 1

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	Illustrate and explain the evolution of data models in detail.	12	3	1	1
	(OR)				
b.	Illustrate and explain the architecture of a database in detail.	12	3	1	1
29. a.	Construct an ER model of a database that is to be used in the following system: Royal house owners association owns a parking Lot. The parking lot has a number of parking spaces. The owner and their guests may freely use all the parking spaces, except some spaces that have electric sockets for engine heaters. Such a parking space is rented by one of the apartment owners, who has exclusive use of the space. The rent for the space is added to the apartment rent.	12	6	2	2
	(OR)				
b.	Convert the given ER conceptual schema diagram for the airways database into a relational database schema using ER-to-Relational mapping algorithm with explanation of each step in the algorithm.	12	6	3	1



30. a.	Illustrate stored procedure with its syntax in PL/SQL.	12	5	4	3
	(OR)				
b.	Formulate SQL queries for data constraints with suitable examples.	12	5	4	1
31. a.	Briefly discuss about the functional dependency concepts with suitable examples.	12	3	5	3
	(OR)				

b.	Consider the following relational database schema; Passenger (pid, pname, pgender, pcity) Agency (aid, aname, acity) Flight (fid, fdata, time src, dest) Booking (pid, aid, fid, fdate) Employ SQL queries to (i) Get the complete details of all flights to New Delhi (ii) Get the details about all flights from Chennai to New Delhi (iii) Find only the flight number for passenger with pid 456 for flights to Chennai before 31.10.2023 (iv) Find the passenger names for passengers who have bookings on at least one flight (v) Find the agency names for agencies that located in the same city as passenger with passenger ID of 236	12	3	5	3
32. a.	Describe the importance of components of service oriented architecture with a neat diagram.	12	2	6	1
	(OR)				
b.	Summarize shortly on		2	6	1
	(i) Scalar data types in dynamoDB	6			
	(ii) Primary key index in dynamoDB	6			

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