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Minor CERTIFICATION EXAMINATION, NOVEMBER 2023

Third Semester

18CSE006J - DATABASE MANAGEMENT SYSTEMS

(For the candidates admitted during the academic year (2020-2021 & 2021-20222))

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.	Views of data are (A) view level, Logical level & Physical level (B) View level, Logical level & External level (C) View level, Physical level & Internal level (D) View level, Internal level & External level	1	1	1
2.	The _____ is widely used to represent semi-structured data. (A) Structured Query Languages (B) Extensible Markup Language (XML) (C) Java (D) Data Definition Language	1	1	2
3.	Identify the component which is part of Query processor (A) Indices (B) Data (C) Compiler and linker (D) Data dictionary	1	1	1
4.	Complete the sentence: Physical Data Independence is the ability to modify. (A) physical-level schema without affecting the logical-level schema (B) the logical-level schema with no effect on view-level schema (C) view-level schema without affecting logical-level schema (D) logical-level schema without affecting physical-level schema	1	1	1
5.	_____ returns the smallest integer value that is greater than or equal to a number. (A) ceil() (B) abs() (C) pos() (D) floor()	1	1	2
6.	Transaction Control Language (TCL) Commands are_____ (A) Commit, Rollback, Savepoint (B) grant, revoke (C) Commit, revoke (D) revoke, rollback, savepoint	1	1	2
7.	To display the salary from greater to smaller and name in ascending order which of the following options should be used? (A) Ascending, Descending (B) Asc, Desc (C) Desc, Asc (D) Descending, Ascending	1	1	2
8.	The _____data model was developed to facilitate database design by allowing specification of an enterprise schema that represents the overall logical structure of a database. (A) entity-relationship (B) relational (C) object oriented (D) logical	1	1	2
9.	Which of the following mapping cardinalities represents a mandatory relationship between two entities in ER (Entity-Relationship) model? (A) One-to-One (1:1) (B) One-to-Many (1:N) (C) Many-to-One (N:1) (D) Many-to-Many (N:N)	1	1	3

10. Which of the following statements is true about keys in SQL? 1 2 2

(A) Primary key is a key that can have null values.
(B) Foreign key is used to link a table to itself.
(C) Candidate key is a key that is not selected as the primary key.
(D) Composite key is a key that consists of two or more columns.

11. Check the correct option which deletes the Views. 1 2 3

(A) DELETE VIEW view_name;
(B) DROP VIEW view_name/table_name;
(C) DROP VIEW view_name;
(D) DROP VIEW table_name;

12. In which normal form there can be no inter dependencies among non-key attributes 1 1 5

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

13. If A->B and B->C holds then A->C Using which rule above fact is justified 1 2 5

(A) Reflexivity rule.
(B) Decomposition rule.
(C) Augmentation rule.
(D) Transitivity rule.

14. 5NF is designed to cope with 1 2 4

(A) Transitive dependency
(B) join dependency
(C) multi valued dependency
(D) inconsistency

15. The "all-or-none" property is commonly referred to as _____ 1 2 5

(A) Isolation
(B) Durability
(C) Atomicity
(D) Consistency

16. Identify the correct match for terms in Column I to those in Column II 1 2 6

Column I	Column II
A) Rollback	P) Relationship
B) Atomicity	Q) Checkpoint
C) Entity	R) Attribute
D) Domain	S) Transaction

(A) A-S,B-P,C-R,D-Q
(B) A-Q,B-P,C-R,D-S
(C) A-S,B-Q,C-R,D-P
(D) A-Q,B-S,C-P,D-R

17. A transaction successfully completed its execution is said to be 1 1 6

(A) Saved
(B) Committed
(C) Partially committed
(D) Rolled

18. The rigorous two-phase locking protocol permits releasing all locks at the 1 1 5

(A) Beginning of transaction
(B) During Execution of transaction
(C) End of transaction
(D) Never in the life-time of transaction

19. Empdt1(empcode, name, street, city, state, pincode). For any pincode, there is only one city and state. Also, for given street, city and state, there is just one pincode. In normalization terms, Empdt1 is a relation in 1 1 3

(A) 1 NF
(B) 2 NF and hence also in 1 NF
(C) 3 NF and hence also in 2 NF
(D) 2 NF and hence also in BCNF

20. In order to undo the work of transaction after last commit which one should be used? 1 1 4

(A) Commit
(B) Savepoint
(C) Rollback
(D) complete

PART - B (5 × 4 = 20 Marks) Marks BL CO

Answer **any 5** Questions

21.	Consider employee and department relation for executing the following queries i. Write a query to find the salary of employees whose salary is greater than the salary of employee whose id is 100? ii. Write a query to find the employees who all are earning the highest salary? iii. Write a query to find the departments in which the least salary is greater than the highest salary in the department of id 200?	4	1	3
22.	a. Construct SQL statements (with Syntax and examples) for TCL COMMANDS b. Differentiate between SAVE POINT and COMMIT	4	1	2
23.	Brief the major components in an E-R diagram with a university database example.	4	1	2
24.	To ensure the transaction is reliable and secure, the bank requires that it adheres to all transaction properties. Brief the properties of the transaction.	4	2	4
25.	Differentiate wound wait scheme with wait die scheme in deadlock prevention strategies.	4	2	5
26.	List all the situation, when a user cannot able to update a VIEW	4	1	3
27.	Consider the relation Customer and Loan in Bank Management system, Draw the ER diagram and Identify the weak entity set, Justify your answers.	4	3	1

PART - C (5 × 12 = 60 Marks)

Answer **all** Questions

		Marks	BL	CO
28.	(a) Compare and Contrast file Systems with database systems.	12	2	1
	(OR)			
	(b) i.Define database management system. (2) ii.What are the advantages of using a DBMS? (5) iii.What is the purpose of database management system ? (5)			
29.	(a) Discuss in detail the various row level and table level integrity constraints	12	1	2
	(OR)			
	(b) Draw an ER diagram for the relations Employee and Department with relevant relationships			
30.	(a) Consider the following relational schema Employee (empno,name,office,age) Books(isbn,title,authors,publisher) Loan(empno, isbn,date) and Write the following queries in relational algebra. i. Find the names of employees who have borrowed a book Published by McGraw-Hill ii. Find the names of employees who have borrowed all books Published by McGraw-Hill iii. Find the names of employees who have borrowed more than five different books published by McGraw-Hill iv. For each publisher, find the names of employees who have borrowed	12	3	3
	(OR)			
	(b) Write queries using Relational Set operators and SQL Join operators			
31.	(a) What are the problems caused by Redundancy? Explain about Normalization and need for normalization.	12	1	4
	(OR)			
	(b) Explain about Third NF and BCNF with relevant table structure.			
32.	(a) Define Concurrency control. Explain different concurrency control mechanisms	12	1	5
	(OR)			
	(b) How can you implement Atomicity in transactions? Explain.			

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