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MINOR CERTIFICATION EXAMINATION, MAY 2024
Second Semester

18CSE006J – DATABASE MANAGEMENT SYSTEMS
(For the candidates admitted during the academic year 2018-2019 to 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

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|---|-------------------------|
| <p>1. Views of data are</p> <p>(A) View level, Logical level, Physical level (B) View level, Logical level, External level</p> <p>(C) View level, Logical level, Internal level (D) View level, Internal level, External level</p> | <p>1 1 1 1</p> |
| <p>2. Identify the component which is the part of the Query Processor</p> <p>(A) Indices (B) Data Pre-processing</p> <p>(C) Compiler and linker (D) Data Dictionary</p> | <p>1 1 1 1</p> |
| <p>3. The _____ command adds records to a table.</p> <p>(A) ADD (B) APPEND</p> <p>(C) ADDRECORD (D) INSERT</p> | <p>1 1 1 1</p> |
| <p>4. The place where the structure and the information about data is stored in the schema of the database is known as _____.</p> <p>(A) Data files (B) Data Dictionary</p> <p>(C) Procedural data (D) Query Information</p> | <p>1 1 1 1</p> |
| <p>5. A relation, say r1, may include among its attributes the primary key of another relation, say r2.
This attribute is called a _____ key from r1, referencing r2.</p> <p>(A) Primary Key (B) Candidate Key</p> <p>(C) Foreign key (D) Super key</p> | <p>1 2 2 2</p> |
| <p>6. Identify which of the following mapping cardinalities represents a mandatory relationship between two entities in ER (Entity-Relationship) model?</p> <p>(A) One-to-one (1:1) (B) One-to-Many (1:N)</p> <p>(C) Many-to-One (M:1) (D) Many-to-many (M:N)</p> | <p>1 3 2 1</p> |
| <p>7. Identify which of the following attribute cannot be considered as Primary key</p> <p>(A) Employee ID (B) Department ID</p> <p>(C) License Number (D) Street Name</p> | <p>1 3 2 1</p> |

8. Identify the command to be used in order to undo the last work of a transaction after the latest commit
 (A) Savepoint (B) Rollback
 (C) Commit (D) Delete
9. Which is the operator used to find out the matching between the string
 (A) * (B) %
 (C) & (D) \$
10. Which of the following is a binary operation in relational algebra?
 (A) Select (B) Project
 (C) Rename (D) Join
11. Which of the following statements is true about keys in SQL?
 (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
12. A: An unique value that identifies each row uniquely is primary key
 R: Only one column can be made as Primary key
 (A) A is true but R is false (B) A is false but R is true
 (C) Both A& R are false (D) Both A & R are true
13. In the _____ normal form, a composite attribute is converted to individual attributes.
 (A) First (B) Second
 (C) Third (D) Fourth
14. A _____ consists of a sequence of query and/or update statements.
 (A) DDL statement (B) DML statement
 (C) Transaction (D) Concurrency
15. A table is in BCNF if it is in 3NF and if every determinant is a _____ key
 (A) Dependent (B) Normal
 (C) Candidate (D) Primary
16. Check the correct option that deletes the views
 (A) Drop View view_name/ table_name; (B) Delete View view_name/ table_name;
 (C) Delete view_name; (D) Drop View_name;
17. This occurs when more than one database transaction attempts to read or write the same database item simultaneously (i.e., concurrent execution), causing the values of the item to become incorrect, resulting in a _____ database.
 (A) Durable (B) Inconsistent
 (C) Consistent (D) Concurrent
18. A lock that allows concurrent transactions to access different rows of the same table is known as a
 (A) Database-level lock (B) Table-level lock
 (C) Page-level lock (D) Row-level lock

19. Which of the following protocols ensures conflict serializability and safety from deadlocks? 1 1 5 2
- (A) Two-phase locking protocol (B) Time-stamp ordering protocol
(C) Graph based protocol (D) Two-phase Commit protocol

20. Which of the following is a procedure for acquiring the necessary locks for a transaction where all necessary locks are acquired before any are released? 1 2 5 1
- (A) Record controller (B) Exclusive lock
(C) Authorization rule (D) Two phase lock

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

Marks BL CO PO

21. Mention the scenarios where the use of DBMS is not recommended. 4 4 1 1
22. What are the four main types of actions involved in a database? Discuss in brief. 4 1 1 1
23. Explain about transaction along with its properties. 4 1 2 2
24. Write SQL statements to create a virtual table and to display records from virtual table. 4 2 3 1
25. Explain Aggregate Functions. List them. 4 1 3 1
26. Differentiate wound wait scheme with wait die scheme in deadlock prevention strategies. 4 1 4 1
27. Identify the different stages of processing a query in a DDBMS? 4 2 5 1

PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

Marks BL CO PO

28. a. Consider the relations customer and Loan in a database. Identify the necessary relations and draw the ER diagram. Identify the weak entity set and justify your answer. 12 2 1 1

(OR)

- b. With the help of a neat block diagram explain the basic architecture of a database management system? 12 2 1 1
29. a. Discuss about additional features of the ER-Models. 12 2 2 1

(OR)

- b. Distinguish strong entity set with weak entity set? Draw an ER diagram to illustrate Weak entity set? 12 2 2 1

30. a. Consider the table MOVIE DETAILS given below

12 4 3 1

Table : MOVIEDETAILS				
MOVIEID	TITLE	LANGUAGE	RAT-ING	PLAT-FORM
M001	Minari	Korean	5	Netflix
M004	MGR Magan	Tamil	4	Hotstar
M010	Kaagaz	Hindi	3	Zee5
M011	Harry Potter and the Chamber of Secrets	English	4	Prime Video
M015	Uri	Hindi	5	Zee5
M020	Avengers: Endgame	English	4	Hotstar

- (i) Identify the degree and cardinality of the table.
- (ii) Which field should be made the primary key? Justify your answer.
- (iii) Write statements to :
 - (1) Delete the records whose language is "English"
 - (2) Add a new record
- (iv) Write statements to :
 - (1) Add a new column "DAYS" of type integer
 - (2) Remove the column "RATING"

(OR)

- b. What is union compatibility? Why do the UNION, INTERSECTION, and DIFFERENCE operations require that the relations on which they are applied be union compatible?

12 4 3 1

31. a. Define Functional Dependencies. Explain First, Second normal forms with relevant tables.

12 1 4 1

(OR)

- b. Write short notes on:
- (i) Functional dependencies
 - (ii) Fully functional dependencies
 - (iii) Transitive dependencies

12 1 4 1

32. a. Discuss the architecture of a DDBMS. Within the context of a centralized DBMS, briefly explain new components introduced by the distribution of data.

12 2 5 1

(OR)

- b. Compare and contrast the two-tier and three-tier client-server architectures.

12 2 5 1

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