

- b. Explain with a table the second and third normal form. 12 2 4 1
32. a. Explain two phase locking protocol and show how it ensures conflict serializability. 12 2 5 1

(OR)

- b. Explain in detail Log-based recovery scheme. 12 2 5 1

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Reg. No.

B.Tech. DEGREE EXAMINATION, MAY 2023

Sixth Semester

18ECE472T – DATABASE MANAGEMENT SYSTEMS

(For the candidates admitted from 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 40<sup>th</sup> 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 a database?  | 1     | 1  | 1  | 1  |
| (A) Organised collection of data that cannot be updated and managed                           |       |    |    |    |
| (B) Collection of data without organizing   |       |    |    |    |
| (C) Organised collection of data that can be accessed updated and managed                     |       |    |    |    |
| (D) Organised collection of data that cannot be updated                                       |       |    |    |    |
| 2. Which of the following is not a type of database?  | 1     | 1  | 1  | 1  |
| (A) Hierarchical  |       |    |    |    |
| (B) Network   |       |    |    |    |
| (C) Decentralized   |       |    |    |    |
| (D) Distributed   |       |    |    |    |
| 3. Which is known as a set of entities of same type that share same properties of attributes? | 1     | 1  | 1  | 1  |
| (A) Relation Set  |       |    |    |    |
| (B) Entity Set  |       |    |    |    |
| (C) Entity Relation modes   |       |    |    |    |
| (D) Tuples  |       |    |    |    |
| 4. The database administrator is, in effect the coordinator between _____ and the _____.      | 1     | 1  | 1  | 1  |
| (A) Database, Users   |       |    |    |    |
| (B) Application Program, Database   |       |    |    |    |
| (C) Application Program, Users  |       |    |    |    |
| (D) DBMS, Programmer  |       |    |    |    |
| 5. The key to represent relationship between tables is called _____.                          | 1     | 1  | 2  | 1  |
| (A) Primary Key   |       |    |    |    |
| (B) Foreign Key   |       |    |    |    |
| (C) Secondary Key   |       |    |    |    |
| (D) Simple Key  |       |    |    |    |
| 6. The entity set person is classified as student and employee this process is called.        | 1     | 1  | 2  | 1  |
| (A) Generalization  |       |    |    |    |
| (B) Specialization  |       |    |    |    |
| (C) Inheritance   |       |    |    |    |
| (D) Constraint Generalization   |       |    |    |    |
| 7. The descriptive property possessed by each entity set is called                            | 1     | 1  | 2  | 1  |
| (A) Attribute   |       |    |    |    |
| (B) Entity  |       |    |    |    |
| (C) Relation  |       |    |    |    |
| (D) Model   |       |    |    |    |

8. Course (course\_id, sec\_id, semester) Hence the course, id, sec\_id, semester are \_\_\_\_\_ and Course is \_\_\_\_\_.  
 (A) Relation, Attribute (B) Attribute, Relation  
 (C) Tuple, Relation (D) Tuple, Attributes
9. The \_\_\_\_\_ clause allows to select only those rows in the result relation of the \_\_\_\_\_ clause that satisfies a specified predicate  
 (A) Where, From (B) From, Select  
 (C) Select, From (D) From, Where
10. To remove a relation from an SQL database we use the \_\_\_\_\_ command.  
 (A) Delete (B) Purge  
 (C) Remove (D) Drop Table
11. Which employee, id will be displayed for the given query  
 select\* From employee where  
 employee\_id>1009;  
 (A) 1009, 1001 (B) 1009, 1018  
 (C) 1001 (D) 1018
12. If we want to eliminate duplicates, we use the keyword \_\_\_\_\_ in the aggregate.  
 (A) Distinct (B) Count  
 (C) Primary Key (D) Separate
13. Which is a Unary Operation?  
 (A) Selection Operation (B) Primitive Operation  
 (C) Projection Operation (D) Generalized Operation
14. Tables in second Normal Form (2NF)  
 (A) Eliminates all hidden dependencies (B) Eliminates the possibility of a insertion anomalies  
 (C) Have a composite key (D) Have all non key fields
15. Which forms has a relation that possesses data about an individual entity?  
 (A) 2NF (B) 3NF  
 (C) 4NF (D) 5NF
16. The \_\_\_\_\_ operator takes the results of two queries and returns only rows that appear in both result sets.  
 (A) Union (B) Intersect  
 (C) Difference (D) Projection
17. \_\_\_\_\_ states that only valid data will be written to the database.  
 (A) Consistence (B) Atomicity  
 (C) Isolation (D) Durability
18. Which of the following are introduced to reduce the overheads caused by the log-based recovery?  
 (A) Checkpoints (B) Indices  
 (C) Deadlocks (D) Locks

19. The \_\_\_\_\_ scheme uses a page table containing pointers to all pages and all updated pages are copied to new location.  
 (A) Shadow copy (B) Paging  
 (C) Shadow Paging (D) Update Log records
20. In the \_\_\_\_\_ phase, the system replays updates of all transactions by scanning the log forward from the last checkpoints.  
 (A) Repeating (B) Redo  
 (C) Replay (D) Undo

### PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 21. Compare the significant features of file processing system and database management system. | 4     | 2  | 1  | 1  |
| 22. Explain in brief about the data abstraction.   | 4     | 2  | 1  | 1  |
| 23. Draw an ER diagram for a typical banking organization. Make assumptions wherever required. | 4     | 3  | 2  | 1  |
| 24. Discuss on mapping cardinalities with example.   | 4     | 3  | 3  | 1  |
| 25. What do you mean by loss less – join decomposition?  | 4     | 2  | 4  | 1  |
| 26. What is deadlock? How can it be avoided?   | 4     | 2  | 5  | 1  |
| 27. Briefly explain the properties of transaction.   | 4     | 2  | 5  | 1  |

### PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

- |   | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 28. a. Explain the database system structure with neat sketch.                          | 12    | 2  | 1  | 1  |
| (OR)  |       |    |    |    |
| b. Explain in detail the DBMS languages with suitable commands.                         | 12    | 2  | 1  | 1  |
| 29. a. Write notes on   |       | 2  | 2  | 1  |
| i. Key, attributes, constraints   | 8     |    |    |    |
| ii. ER Diagram issues   | 4     |    |    |    |
| (OR)  |       |    |    |    |
| b. Explain in detail conversion of ER into relational table with an example.            | 12    | 2  | 2  | 3  |
| 30. a. With suitable syntax explain the structure creation and alteration in SQL.       | 12    | 2  | 3  | 4  |
| (OR)  |       |    |    |    |
| b. Explain in detail the stored procedure, functions triggers and exceptional handling. | 12    | 2  | 3  | 1  |
| 31. a. Illustrate with example what are the pit falls in relational database design.    | 12    | 2  | 4  | 1  |