

1608  
Code No. 15084/AICTE

## FACULTY OF ENGINEERING

B. E. IV – Semester (AICTE) (CSE) (Main & Backlog) Examination, October 2021

Subject: Database Management Systems

Max. Marks: 70

Time: 2 hours

Note: (Missing data, if any, may be suitably assumed)

### PART – A

(5 x 2 = 10 Marks)

Answer any five questions.

- 1 Tell about Database applications?
- 2 What are Weak Entity Sets?
- 3 Differentiate between file system and data base system.
- 4 What is Set Operation?
- 5 Explain about Transaction.
- 6 What is dynamic SQL?
- 7 Tell about Normalization?
- 8 Define transaction state.
- 9 What is deadlock handling?
- 10 Distinguish between Indexing & hashing?

### PART – B

(4 x 15 = 60 Marks)

Answer any four questions.

- 11 (a) Draw and explain 'Database Architecture'.  
(b) Write about Nested Subqueries.
- 12 (a) Explain about Fundamental Relational-Algebra Operations.  
(b) Discuss about 'Null values'.
- 13 Explain about Atomic domains & First Normal Form.
- 14 (a) Give the comparison of ordered indexing and hashing bitmap indices.  
(b) Explain the concept of B-tree index files.
- 15 (a) Differentiate between Timestamp based protocols & Validation based protocols.  
(b) Write about storage structure.
- 16 Explain in detail Extended Relational – Algebra Operations.
- 17 Write short notes on:
  - (a) E-R Model
  - (b) Static hashing & dynamic hashing

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Code No: D-2091/O/BL/AICTE

**FACULTY OF ENGINEERING**  
**B.E. (CSE) IV-Semester (AICTE) (Backlog) (Old) Examination,**  
**September / October - 2022**

**Time : 3 Hours**

**Subject : Database Management Systems**

**(Missing data, if any, may be suitably assumed)**

**Max. Marks: 70**

**Note : Answer all the questions**

**PART - A**

(10 x 2 = 20 Marks)

1. What are Domain Constraints? List them?
2. What are three levels of Data abstraction?
3. Write the Fundamental Relational algebra operations with symbols. And Justify how SELECT( $\sigma$ ) OF Relational algebra operation is different from SQL SELECT Statement, with an example?
4. Which integrity constraint is used to identify the uniqueness of a row in a table?  
a. NOT NULL   b. Foreign Key   c. UNIQUE   d. PRIMARY KEY
5. Define Joins in Database? What are the conditions of joins used in SQL?
6. Define Embedded SQL? What is Syntax used in Programming Language?
7. Draw the Dense Index with an example?
8. What is Blind-Write?
9. Explain Recoverability?
10. What is Two-Phase locking Protocol?

**PART - B**

**Note : Answer any five questions**

(5 x 10 = 50 Marks)

11. a) Explain the Database Architecture?  
b) Explain the functions of database administrators?
12. a) Explain extended relational algebra operations?  
b) Discuss the various types of SET operations used in SQL?
13. a) Define Trigger in database? Write a trigger to deny when a new record is inserted into a Table?  
b) Explain 1NF, 2NF, and 3NF with appropriate example?
14. a) Construct B+ tree Indexing for the following set of search key values where a node that can accommodate four (4) pointers. (Hint:  $n=4$ , then  $n-1=3$  values)  
2   3   5   7   11   17   19   23   29   31   35  
b) Differentiate between Static Hashing and Dynamic Hashing.
15. a) Explain multiple Granularity using Compatibility matrix with diagram?  
b) What is Checkpoint in LOCK-BASED protocols?
16. a) Explain Bitmaps indexing technique with an appropriate example?  
b) What are Deadlock prevention techniques explain?
17. Write short notes on the following
  - a) Integrity Constraints.
  - b) Importance of creating an Index on Table with a suitable example.
  - c) Recoverability.

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