

# CBCS SCHEME

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18CB55

## Fifth Semester B.Tech. Degree Examination, Jan./Feb. 2023 Database Management Systems

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. List advantages of database approach and explain. (10 Marks)  
b. Explain three schema architecture with a neat diagram. (10 Marks)

OR

- 2 a. Write and justify ER diagram for Bank database. (10 Marks)  
b. Explain weak and owner entities with suitable example. (10 Marks)

### Module-2

- 3 a. Explain entity integrity and referential integrity constraint in detail. (10 Marks)  
b. Explain set theory operations in relational algebra. (10 Marks)

OR

- 4 a. Explain steps for ER to relational mapping with suitable examples. (10 Marks)  
b. Consider tables and write SQL queries  
Works(Pname, Cname, Salary)  
Lives(Pname, Streets, City)  
Located in(Cname, City)  
(i) List names of people who work for 'Wipro' along with cities they live in.  
(ii) Find the person who lives and work in same city.  
(iii) Find names of people who do not work for Cognizant. (10 Marks)

### Module-3

- 5 a. Explain aggregate functions in SQL. (10 Marks)  
b. Write SQL queries for following database :  
Movie(title, director, year, rating, actor)  
Actor(Actor, age)  
Acts(Actor, title)  
Directores(director, dage)  
(i) Find movie with rating = 5.  
(ii) Find director who has directed more than 3 movies.  
(iii) List age of actor and director. (10 Marks)

OR

- 6 a. Explain stored procedure with suitable example. (10 Marks)  
b. Explain middle tier and presentation buyer with diagram. (10 Marks)

### Module-4

- 7 a. Explain the ways to normalize relation to 1 NF. (10 Marks)  
b. Write and explain design guidelines of relations. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Explain 4 NF and 5 NF with examples. (10 Marks)  
b. Give an algorithm to find closure and key of relation R. (10 Marks)

**Module-5**

- 9 a. Explain strict 2PL with example. (10 Marks)  
b. Explain the anomalies that exist due to interleaved execution of instructions. (10 Marks)

OR

- 10 a. Write short notes on :  
(i) Schedule. (10 Marks)  
(ii) Timestamp ordering protocol (10 Marks)  
b. Write properties of transaction and explain with suitable example. (10 Marks)

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VTU EXAMS JAN. / FEB. 2023