

Model Question Paper- II with effect from 2022

CBCS SCHEME

Fourth Semester B.E Degree Examination 2024-25

Database Management System (BCS403)

TIME: 03 Hours

Max.Marks:100

1. Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**

2. M: Marks, L: Bloom's level, C: Course outcomes.

	Module - 1		M	L	C
Q.1	a	What is a Database? Explain the three schema architecture with neat diagram.	8	L2	CO1
	b	What are the advantages of using DBMS approach? Explain	8	L2	CO1
	c	Explain the following terms. 1. Data Dictionary 2. Weak Entity	4	L2	CO1
	OR				
Q.2	a	Explain the categories of Data Models.	8	L2	CO1
	b	Explain the component modules of DBMS & their interactions with diagram.	8	L2	CO1
	c	What are the responsibilities of DBA & database designers?	4	L2	CO1
	Module - 2				
Q.3	a	Explain the different types of update operations on relational database. How basic operation deals with constraint violation.	6	L2	CO2
	b	Explain Unary relational operations with examples.	6	L2	CO2
	c	What is an Integrity Constraint? Explain the importance of Referential Integrity Constraint.	8	L2	CO2
	OR				
Q.4	a	Explain the following relational algebra operation. JOIN, DIFFERENCE, SELECT, UNION	10	L3	CO2
	b	Discuss the E.R to Relational mapping algorithm with example for each step.	6	L3	CO2
	c	Explain the relational algebra operation for set theory with examples.	4	L2	CO2
	Module - 3				
Q.5	a	Illustrate insert, delete, update, alter & drop commands in SQL.	6	L4	CO3

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	b	Explain informal design guidelines for relational schema design.	4	L2	CO3
	c	What is Functional dependency? Explain the inference rules for functional dependency with proof.	10	L3	CO4
	OR				
Q.6	a	Consider two sets of functional dependency. $F=\{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$ $E= \{A \rightarrow CD, E \rightarrow AH\}$. Are they Equivalent?	10	L3	CO4
	b	Explain the types of update anomalies in SQL with an example.	10	L2	CO3
	Module - 4				
Q.7	a	Demonstrate transaction states & additional operations.	10	L3	CO4
	b	Demonstrate working of Assertion & Triggers in database? Explain with an example.	10	L2	CO3
	OR				
Q.8	a	Demonstrate the System Log in database transaction.	6	L2	CO4
	b	Discuss the ACID properties of database transaction.	4	L2	CO4
	c	Explain stored procedure language in SQL with an example.	10	L2	CO3
	Module - 5				
Q.9	a	Explain the Two phase locking protocol used for concurrency control.	8	L3	CO5
	b	Define Schedule? Illustrate with an example.	4	L2	CO5
	c	Why Concurrency control is needed? Demonstrate with an example.	8	L3	CO5
	OR				
Q.10	a	What is NOSQL? Explain the CAP theorem.	6	L2	CO5
	b	What are document based NOSQL systems? basic operations CRUD in MongoDB.	8	L2	CO5
	c	What is NOSQL Graph database? Explain Neo4j.	6	L2	CO5