CBCS SCHEME

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22MCA21

ACHARYA INSTITUTE OF TECHNOLOGY
MCA
Libra...
Date .....
BANGALORE

Second Semester MCA Degree Examination, Dec.2024/Jan.2025
Database Management System

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the characteristics of database approach.	10	L2	CO1
	b.	Briefly discuss the actors on the scene and workers behind the scene.	06	L2	CO1
	c.	What are the advantages of using DBMS approach?	04	L2	CO1
		OR			
Q.2	a.	Describe the categories of data models.	06	L2	CO1
	b.	With a neat diagram, explain the three schema architecture.	10	L2	CO1
	c.	Define data independence. Discuss the types of data independence.	04	L2	CO1
		Module – 2			
Q.3	a.	Illustrate the relational model constraints and relational database schema with an example.	10	L2	CO4
	b.	Demonstrate the unary relational operations with an example.	06	L3	CO4
	c.	Discuss the relational algebra operations from set theory.	04	L2	CO4
		OR			
Q.4	a.	Describe the importance of binary relational operations and additional operational of relational operations.	10	L2	CO4
	b.	Demonstrate the seven steps of relational database design using ER to relational mapping.	10	L3	CO4
		Module – 3			
Q.5	a.	What is SQL? Discuss the attribute datatype and domains in SQL.	06	L2	CO2
	b.	Illustrate the features of creating assertion and trigger. Give example.	08	L3	CO2
	c.	Describe the concept of views (virtual tables) in SQL. Also give examples.	06	L3	CO2
		OR			
Q.6	a.	Explain the architecture of JDBC main components and classify the drivers in JDBC.	10	L2	CO3
	b.	Discuss the importance of stored procedures and its creation and calling of JDBC and SQLJ.	10	L2	CO3

		Module – 4			
Q.7	**a.**	Describe the design guidelines for relation schema.	**08**	**L2**	**CO3**
	b.	Illustrate the process of normalization of relations with 1NF, 2NF, 3NF and BCNF with neat examples.	**12**	**L3**	**CO5**
		OR			
Q.8	**a.**	Armstrong's interference rules IR1 through IR2 are sound and complete. Justify this statement.	**08**	**L2**	**CO5**
	b.	Explain the importance of lossless (non additive join property) of a decomposition?	**06**	**L2**	**CO5**
	c.	Discuss the problems with Null values and dangling tuples.	**06**	**L2**	**CO5**
		Module – 5			
Q.9	**a.**	Justify concurrency control is necessary. Discuss the problems may encounter.	**10**	**L2**	**CO5**
	b.	Characterize the types of schedules based on serializability.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Describe the two-phase locking techniques for concurrency control.	**10**	**L2**	**CO5**
	b.	Demonstrate the granularity of data items and multiple granularity locking.	**10**	**L2**	**CO5**

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