R20

Code No: R20A0509

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, April 2025

Database Management Systems

(CSE, IT, CSE-CS, CSE-AIML, CSE-DS, CSE-IOT & B.Tech-AIDS)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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			BCLL	CO(s)	Marks
		SECTION-I			
1	***A***	What are the application programs? Explain database access from application programs?	**L3**	**CO-I**	**[7M]**
	B	Show how each ER model construct can be mapped to the relational model	**L3**	**CO-I**	**[7M]**
		OR			
2	***A***	Define DBMS? List Database system applications	**L3**	**CO-I**	**[7M]**
	B	Explain the components of Database System Architecture	**L2**	**CO-I**	**[7M]**
		SECTION-II			
3	***A***	Describe the following in SQL with examples A) Nested Queries B) Correlated Queries C) Group by and Having Clauses D) Triggers	**L2**	**CO-II**	**[7M]**
	B	What is a view? Explain about views in detail?	**L2**	**CO-II**	**[7M]**
		OR			
4	***A***	What are the various operators used in Relational Algebra? Explain with an example for each.	**L2**	**CO-II**	**[7M]**
	B	Explain the Division operator of Relational algebra with a suitable example. What is the usage of 'group by' and 'having' clauses in SQL?	**L2**	**CO-II**	**[7M]**
		SECTION-III			
5	***A***	Given a relation R(P, Q, R, S, T, U, V, W, X, Y) and Functional Dependency set FD = { PQ → R, PS → VW, QS → TU, P → X, W → Y }, determine whether the given R is in 2NF? If not convert it into 2 NF.	**L3**	**CO-III**	**[7M]**
	B	Explain fourth normal form and BCNF with examples	**L2**	**CO-III**	**[7M]**
		OR			
6	***A***	Write about decomposition preservation algorithm for all FD's	**L2**	**CO-III**	**[7M]**
	B	What are the advantages of normalized relations over the unnormalized relations?	**L3**	**CO-III**	**[7M]**
		SECTION-IV			
7	***A***	What is Serializability? Explain its Types	**L2**	**CO-IV**	**[7M]**
	B	Write a short note on concurrency control and What are the problems encountered with concurrent transactions ? Explain through examples.	**L2**	**CO-IV**	**[7M]**

		OR			
8	***A***	Define the concept of schedule for a set of concurrent transaction. Give a suitable example?	**L2**	**CO-IV**	**[7M]**
	B	Write the locking compatibility matrix used for multiple granularity? Explain with suitable examples?	**L3**	**CO-IV**	**[7M]**
		SECTION-V			
9	***A***	What is a checkpoint? Explain how checkpoints can be used in recovery of databases.	**L2**	**CO-V**	**[7M]**
	B	What is Log Based Recovery and recovery base Transactions?	**L2**	**CO-V**	**[7M]**
		OR			
10	***A***	How the data will be recovered by concurrent transactions?	**L3**	**CO-V**	**[7M]**
	B	Briefly explain about failure with loss of non-volatile storage.	**L2**	**CO-V**	**[7M]**

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