Code No.: IT403PC	R20	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) -June- 2025
DATABASE MANAGEMENT SYSTEMS
(Common to CSM, IT)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	What are the responsibilities and contributions of Database Designers in the design of a database system?	[2M]
	b)	Write the purpose of defining schema for an enterprise.	[2M]
	c)	Explain significances of canonical cover in database normalization.	[2M]
	d)	Write the queries for different join operations.	[2M]
	e)	Write the differences between nested and correlated query.	[2M]
	f)	How dependency preservation can be achieved?	[2M]
	g)	What is lock granularity and what are the different levels of granularity in locking mechanisms?	[2M]
	h)	Define durability and atomicity of a transaction.	[2M]
	i)	What is the significance of a clustered index in database systems?	[2M]
	j)	Give advantage and disadvantages of sequential file organization.	[2M]

PART-B **(50 Marks)**

2.	Discuss the representation of total participation and multivalued attribute in an E/R diagram.	[10M]
	OR	
3.	What is data independence and how does a DBMS support it? Explain.	[10M]
4.	What is a relation? Differentiate between relation schema and relation instance. Define the terms unity and degree of relation. What are domain constraints?	[10M]
	OR	
5.	Differentiate between Procedural and Declarative Query languages with suitable examples.	[10M]
6.	What are the aggregate operations used in SQL? Explain with suitable queries.	[10M]
	OR	
7.	How can you compute the minimal cover for a set of functional dependencies? Given a Relation R=(X,Y,Z) and Functional Dependencies are F={ {X,Y}→{Z}, {Z}→{X} } Determine all Candidate keys of R and the normal form of R with proper explanation.	[10M]
8.	What are ACID properties? Explain Wait/Die and Wound/Wait Schemes in transaction management.	[10M]
	OR	
9.	How to do concurrency control by using timestamp- based protocols? Explain.	[10M]

10. Explain different file organization techniques. Compare their performance evaluation measures and factors at a higher cognitive level. [10M]

OR

11. Explain briefly about Hash based indexing in file organization. Construct a B+Tree for the following list of elements: 1, 4, 7, 10, 17, 21, 31, 25, 19, 20, 28, 42. [10M]

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