Code No.: R22DS741PE | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - December- 2025
SPATIAL AND MULTIMEDIA DATABASES
(CSD)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 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 **(10 Marks)**

1.	a)	Mention one advantage of using an SDBMS over a traditional DBMS.	[1M]
	b)	Give an example of a raster data model.	[1M]
	c)	Mention one use of k-d trees in computational geometry.	[1M]
	d)	State one limitation of R-Trees.	[1M]
	e)	What is meant by "representing image DB with relations"?	[1M]
	f)	Mention one implementation challenge in image databases.	[1M]
	g)	Mention one challenge in multimedia database design.	[1M]
	h)	Name any two media types supported by multimedia databases.	[1M]
	i)	Name two objects used in distributed multimedia presentation.	[1M]
	j)	Define media streaming.	[1M]

PART-B **(50 Marks)**

2.	Write short notes on: (i) Spatial query language. (ii) Spatial data types. (iii) Spatial operations (e.g., intersection, containment).	[10M]
	OR	
3.	Illustrate how query processing and optimization work in an SDBMS with suitable diagrams.	[10M]
4.	Explain the TR* tree in detail with an example. How does it differ from an R-Tree?	[10M]
	OR	
5.	Evaluate different methods for the evaluation of spatial operations with suitable examples.	[10M]
6.	Explain how image databases can be represented using relational structures. Give an illustrative example.	[10M]
	OR	
7.	Compare image databases and text/document databases in terms of data representation, indexing, and query processing.	[10M]
8.	Explain the design and architecture of a multimedia database. What are the key components and design issues?	[10M]
	OR	
9.	Explain how multimedia databases support complex queries across different media types.	[10M]
10.	Explain the specifications of multimedia documents with temporal constraints With suitable examples.	[10M]
	OR	
11.	Discuss techniques used for efficient solution of temporal presentation constraints in multimedia systems.	[10M]

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