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**ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)**  
**B.E. (Full Time) - ARREAR EXAMINATIONS, APRIL / MAY 2025**  
**GEOINFORMATICS**  
**III rd Semester**  
**GI 23301 & SPATIAL DATABASE MANAGEMENT SYSTEM**  
**(Regulation 2023)**

**Time: 3hrs**

**Max. Marks: 100**

CO1	Describe the components, architectures, and classifications of DBMS and differentiate between file systems and database management systems.
CO2	Demonstrate the ability to model spatial data using points, lines, and polygons and integrate them into spatial databases.
CO3	Design relational and spatial databases using entity-relationship (ER) models, relational models, and object-oriented modeling techniques with tools like UML.
CO4	Construct complex SQL queries, including spatial queries, to define, manipulate, and analyze database information effectively.
CO5	Assess indexing techniques, spatial join methods, and concurrency mechanisms while ensuring database security and recovery strategies.

**BL – Bloom's Taxonomy Levels**

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

**PART- A(10x2=20Marks)**

(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	Distinguish Tuple Vs Relation.	2	1	L2
2	List any two responsibilities of Database Administrator.	2	1	L1
3	Write the feature of Methods in UMLCD.	2	2	L2
4	Specify the use of Pictogram.	2	2	L2
5	Mention the capabilities of DDL and DML.	2	3	L2
6	List any four Spatial analysis operations in OGIS standard.	2	3	L1
7	Write the significance of Global Clustering.	2	4	L2
8	What is the use of Buffer Manager?	2	4	L2
9	Write the features of Spatial Geometry.	2	5	L2
10	Specify the characteristics of Spatial Database.	2	5	L2

**PART- B(5x 13=65Marks)**

(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain the three types of Data modelling in DBMS.	13	1	L4
<b>OR</b>				
11 (b)	Using a suitable fig Explain the multi layer architecture of SDBMS.	13	1	L4
12 (a)	Explain the characteristics of Field and Object based models.	13	2	L4
<b>OR</b>				
12 (b)	Explain the ER model using a suitable example.	13	2	L4
13 (a)	Write any four Spatial queries that emphasize Spatial aspects.	13	3	L4
<b>OR</b>				
13 (b)	Explain the concept of Views and Triggers using a suitable example.	13	3	L4
14 (a)	Explain the Unordered, Ordered and Hashed file structure using a suitable example.	13	4	L4
<b>OR</b>				
14 (b)	Explain the concepts involved in Data Security.	13	4	L4
15 (a)	Explain the Geospatial DB for mapping Travelers Demand for any Tourist spot.	13	5	L4
<b>OR</b>				
15 (b)	Compare the features of Open source and Commercial Spatial Databases.	13	5	L4

**PART- C(1x 15=15Marks)**

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Evaluate the capabilities of any one open source and commercial spatial databases of your own and suggest for the application.	15	5	L5