

Name: Enrolment No:			
UPES End Semester Examination, December 2025 Course: Spatial Database Management Program: B.Sc Geology (Hons.) Course Code: PEGS 3067P No. of Pages: 2 Instructions: Section B and Section C have internal choices. Semester: V Time : 03 hrs. Max. Marks: 100			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Illustrate the use of Limit and Left functions in SQL with suitable example.	4	CO1
Q 2	Differentiate between Project and Select operators in Relational algebra.	4	CO2
Q 3	Differentiate between Geometry and Geography data type.	4	CO3
Q 4	Explain the significance of Query optimization.	4	CO4
Q 5	Briefly describe the role of ArcGIS server.	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q 6	Describe the ACID properties of a relational database. OR Summarize the key problems in File based systems and then describe the benefits of transitioning from file-based system to DBMS.	10	CO1
Q 7	Elaborate on the different types of spatial joins and their importance. Illustrate your answer through real time examples.	10	CO2
Q 8	Differentiate between sparse index and dense index and draw suitable diagrams.	10	CO3
Q 9	With a simple diagram and explanation, show how the creation of an Index leads to lesser number of block access and hence faster search. You can take 4 fields in database table populated with 100 records.	10	CO4
SECTION-C (2Qx20M=40 Marks)			
Q 10	Describe the types of Spatial Queries with real world examples and draw relevant diagrams.	20	CO3

Q 11	Differentiate between a B-Tree and R-Tree method of indexing and explain the benefits of a B-Tree. OR Describe how insertion is done in B-Tree with relevant example. Insert the following sequence: 10, 20, 5, 6, 12, 30, 7, 17 in a B-tree of order 3 ($t = 3$).	20	CO4
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