UPES
UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Spatial Database System　　　　　　　　　**Semester:　VI**
Program: B.Tech GIE　　　　　　　　　　　　　　**Time　　: 03 hrs.**
Course Code: PEGI 3003　　　　　　　　　　　　**Max. Marks: 100**

Instructions:
All Questions are Compulsory.

	SECTION A (5Qx4M=20Marks)		
S. No.		**Marks**	**CO**
Q 1	List the types of data definition languages.	4	CO1
Q 2	Illustrate the use of Limit and Left functions in SQL with suitable example.	2+2	CO2
Q 3	Differentiate between Project and Select operators in Relational algebra.	4	CO2
Q 4	List and explain in one line, the different types of spatial relationships.	4	CO3
Q 5	Explain the significance of Query optimization.	4	CO3
	SECTION B (4Qx10M= 40 Marks)		
Q 6	Define a data model. What are the different types of DBMS database models. Illustrate your answer with diagrams/examples.	2+8 = 10	CO1
Q 7	Describe the ACID properties of relational database.	10	CO2
Q 8	Differentiate between Joins and Relate and describe the different types of spatial joins.	4+6	CO3
Q 9	a) Differentiate between sparse index and dense index.	5	CO4
	b) What are the benefits of a B-Tree Index?	5	CO4
	SECTION-C (2Qx20M=40 Marks)		
Q 10	a) Describe the types of Spatial and Non-spatial queries with suitable examples.	10	CO3
	b) Explain the major steps involved in Query processing.	10	CO3

Q 11	a) 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
	b) Describe how insertion is done in B-Tree with relevant example.	10	CO4
OR			
	Describe B-Tree and R-Tree data structures for spatial indexing.	20	CO4