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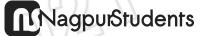
B.E. (Computer Science & Engineering) Seventh Semester (C.B.S.)

Elective-II: Computational Geometry

P. Pages: 2 NIR/KW/18/3577 Time: Three Hours Max. Marks: 80 Notes: 1. All questions carry marks as indicated. Solve Question 1 OR Questions No. 2. 2. Solve Question 3 OR Questions No. 4. 3. 4. Solve Question 5 OR Questions No. 6. 5. Solve Question 7 OR Questions No. 8. Solve Question 9 OR Questions No. 10. 6. Solve Question 11 OR Questions No. 12. 7. Assume suitable data whenever necessary. What is triangulation? Describe the following. 1. a) Angular triangulation. b) Point-Set triangulation. b) Explain line segment intersection in view of computational geometry. OR 7 2. Discuss two fields of application of computational geometry highlighting why classical a) geometry can't be applied in such field. Explain Doubly connected Edge list. 7 b) 3. What is orthogonal range searching? Explain one dimensional range searching. a) Discuss linear programming with prune and search in detail. b) OR Discuss half plane intersection in view of computational geometry. 4. a) What is trees? Explain higher dimensional range trees. b) 7 5. a) Define the following terms: i) Duality. Levels and discrepancy. ii) Explain point location & trapezoidal maps. b) 6 OR What is Voronoi diagram? What is the significance of the Voronoi diagram. a) Explain application of randomized incremental algorithm.

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1	. 3P -		
7.	a)	What is priority search trees? Explain with suitable example.	7
2	b)	How to compute the Delaunay triangulation.	6
		OR	2
8.	a)	Difference between data structure and Geometric data structure.	5
	b)	Explain data structure and application of internal trees and segment trees.	8
9.	a)	Define binary space partition trees. Explain with suitable example.	7
	b)	Explain BSP trees with diagram.	6
		OR	
10.	a)	What is the role of painter's algorithm? Explain in brief.	7
) (V)	b)	Discuss the advantages and dis-advantages of BSP trees over Kd-trees.	6
11.	a)	Explain the significance of multi-level partition trees.	7
	b)	Write short note on simplex Range searching.	7
		OR	
12.	a)	Explain cutting trees.	7
	b)	Give definition and block diagram of quadtrees for point set.	7





All our dreams can come true if we have the courage to pursue them.

~ Walt Disney

