



- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Assume suitable data whenever necessary.

1. a) What is computational Geometry? Explain line segment intersection. 6
b) Explain Doubly connected Edge list. 7
- OR**
2. a) What is Boolean operation? Explain different Boolean operation. 6
b) Explain Polygon Triangulation in detail. 7
3. a) What is trees? Explain higher dimensional range trees. 7
b) What is orthogonal range searching? Explain one dimensional range searching. 7
- OR**
4. a) Difference between 10
i) Kd-trees and Range trees.
ii) Incremental linear programming and Randomized linear programming.
b) Explain geometry of casting. 4
5. a) What is point location and trapezoidal maps? Explain in detail. 7
b) Explain Randomized incremental algorithm. 6
- OR**
6. a) Define voronoi diagram and their basic properties. 6
b) Define the following terms 7
i) Duality.
ii) Levels and discrepancy.
7. a) What is Delaunay Triangulations? Explain Triangulations of planner point sets. 7
b) How to compute the Delaunay triangulation. 6
- OR**
8. a) Difference between data structure and Geometric data structure. 5
b) Explain priority search tree with suitable example. 8

9. a) What is BSP trees. Explain with diagram. 6
b) What is convex hulls. How to compute complexity of convex hulls in 3-space. 7
OR
10. a) Write short note on Painter's algorithm. 6
b) How to construct a BSP tree with suitable example. 7
11. a) Difference between 14
i) Uniform meshes and non-uniform meshes.
ii) Partition trees and multi – level partition trees.
- OR**
12. Write short note on
i) Quadtrees for point sets. 5
ii) Cutting trees 5
iii) Simplex Range searching. 4

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