

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2708

Roll No.

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B. Tech.

(SEM. VII) THEORY EXAMINATION 2011-12

COMPUTATIONAL GEOMETRY

Time : 3 Hours

Total Marks : 100

- Note :-** (i) Attempt **all** questions.
(ii) All questions carry equal marks.

1. Attempt any **two** parts : **(2×10=20)**
- (a) What is convex hull ? Discuss the orientation and limitation of convex hull in detail.
- (b) Write a short note on the following :
- (i) Planner graph
- (ii) Construction of convex hull in 2D.
- (c) What is triangulation ? Describe the following.
- (i) Angular triangulation
- (ii) Point-set triangulations.
2. Attempt any **two** parts : **(2×10=20)**
- (a) What do you understand by divide and conquer ? Discuss flip and incremental algorithm in detail.

- (b) Describe min-max angle properties in detail.
- (c) Describe Voronoi diagram. What do you understand by duality of Voronoi diagrams ?

3. Attempt any **two** parts : **(2×10=20)**

- (a) What is geometric searching ? Discuss point location and fractional cascading in detail.
- (b) What is visibility ? Discuss algorithms for weak and strong visibility.
- (c) Discuss linear programming with prune and search in detail.

4. Attempt any **two** parts : **(2×10=20)**

- (a) Discuss arrangement of lines and hyper planes in detail.
- (b) Discuss zone theorem in detail.
- (c) What is combinatorial geometry ? Describe Ham-sandwich cuts.

5. Write notes on any **two** : **(2×10=20)**

- (a) Sweep Techniques.
- (b) Applications of computational geometry.
- (c) Robust geometric computing.