

## Computer Graphics &amp; Image Processing p11q11

Exam Question for Paper 4 2000

Describe in detail an algorithm for performing scan conversion of a set of 3D polygons. You may assume that you are given the colour of each polygon and that no lighting calculations are required. Ray tracing is not an acceptable answer to this question. [20 marks]

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Model answer

This question requires a lot of detail. Particular points which must be made are:

- ① some method of determining visibility. In the lecture notes I describe the following algorithms, any of which would be suitable:
  - depth sort
  - binary space partition tree
  - modified 2D algorithm (consider all polygons at once)
  - Z-buffer, and its extension: A-buffer
- ② some method of projecting  $3D \rightarrow 2D$
- ③ some method of clipping polygons to ~~either~~ the viewing frustum
- ④ some method of drawing 2D polygons