MAL 754: Principles of Computer Graphics

Minor Test II

Date: 22.03.2015

Time: 1 Hour

Max. Marks: 20

Note:

Answer all the THREE questions

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1). Suppose the given object is rotated about the X-axis by 45 degrees in the clockwise direction and then projected on the $x - y + z = 0$ plane with the direction projection vector being $(-\mathbf{i} + \mathbf{j} - \mathbf{k})$. Find the parallel projection? Is it an isometric projection? Verify your claim.

(5 + 1 + 1 = 7 Marks)

2). Assume that the direction of view for a parallel projection is: $5\mathbf{i} + 10\mathbf{j} + 2\mathbf{k}$. Using back face removal/self hidden surface removal algorithm, find the visible faces of the tetrahedron object having four faces defined by the vertices:

$O=O(0,0,0)$, $A=A(1,1,1)$, $B=B(1,0,0)$ and $C=C(1,0,1)$.

(5 + 1 + 1 = 7 Marks)

3). Describe in detail the Binary space partitioning tree algorithm for hidden surface removal by clearly stating your assumptions.

(6 Marks)
