

2005 Paper 9 Question 6

Advanced Graphics

- (a) Compare and contrast B-spline and subdivision representations of curves. [4 marks]
- (b) Explain how B-spline basis functions are derived from the knot vector. [4 marks]
- (c) Derive the quadratic uniform B-spline basis function (use the knot vector $[0, 1, 2, 3]$). [4 marks]
- (d) Describe an algorithm to give the first intersection point of a ray with a closed cylinder of finite length aligned along the z -axis. [8 marks]