

Qualify Exam: Computer Graphics (2017 Fall)

1. (a) Draw the flow of *Graphics Pipeline* and briefly describe the process in each step. (10%)
(b) What is programmable pipeline? (5%)
(c) What is the difference between *Flat Shading*, *Gouraud Shading*, and *Phong Shading*? (9%)
2. (a) Briefly describe the concepts of *Texture Mapping*, *Bump Mapping*, and *Environmental Mapping*. (15%)
(b) What is the *aliasing problem* in texture mapping? (5%)
(c) How to deal with the *aliasing problem*? (10%)
3. (a) What issues should be considered when designing a ray tracing algorithm? (10%)
(b) Explain the physical meaning of the *Radiosity Equation*. (10%)
4. (a) What is C^1 parametric continuity? (3%)
(b) What is G^1 geometric continuity? (3%)
(c) Explain the difference between the Bézier curve and the B-spline curve. (10%)
5. Describe how the marching cube algorithm works. (10%)