

# Topics for midterm 1 for csc 476 – Spring 2007 (4/27/07)

The graphics pipeline

Texturing

Multi-texturing

Vertex and Pixel shaders

Including: Diffuse light maps, gloss maps, normal maps, vector math

Here are some very general questions I would like you to be able to answer – exam questions will vary greatly (i.e. likely be a specific application of this knowledge).

Any question from quiz1

Assuming you are trying to render a scene composed primarily of the exterior wall of a castle, and you would like the wall to look like hand carved stones and mortar. If you know that the character in your program will always approach the wall at mid-day, but is allowed to walk around the entire wall and even jump over it and you want to optimize the real-time performance of your program – how can you produce a nice rendering of the castle wall? What can you do if the character can approach the wall at any time of day or night?

Why does the graphics pipeline include the ability to do multi-texturing? What is an example of something you can do with multi-texturing but not with single pass (single texture access) texturing?

In general, what can you do with a vertex shader? Why would you want to do that?

In general, what can you do with a pixel shader? Why would you want to do that?

Can you do everything that you can do in a pixel shader with multi-texturing? Why or why not?

With regards to texture mapping, what is minification and what is magnification? (Be specific in your answer for each). What is one of the best ways to solve for this filtering problem? And why does this work well?

What is the difference between a diffuse light map and a normal map?

Name the components of reflected light in the Phong model?

In general what terms are used to calculate specular lighting? Diffuse lighting? Ambient lighting?

Where do vertex and pixel shaders fit into the fixed function graphic pipeline?