

Exam - Computer Graphics

26 March 2008, 8-13

- Give a formula for the reflection of a vector a with respect to another vector b . (0.5)
 - What is the difference between a *rigid body transform* and a *similarity transform*? (0.5)
- Explain how *rasterization* of a triangle is done. (0.5)
 - Explain how *shading* of a rasterized triangle is done. (0.5)
- What is a *BRDF*? (0.5)
 - What is a *light map*? (0.5)
- What is a *cube map* and what is typically used for? (0.3).
 - Explain the algorithm for doing lookup in a cubemap? (0.7)
- Describe what is displayed on the screen after a call to the function *draw* below (0.8).

```
def draw():
    glColor(1,0,0)
    glPushMatrix()
    glTranslate(2,0,0)
    glRotate(90, 0,0,1)
    glScale(2,1,1)
    glPushMatrix()
    glTranslate(3,0,0)
    drawSquare()

    glColor(0,1,0)
    glPopMatrix()
    glRotate(180, 0,0,1)
    glScale(1,2,1)
    glPushMatrix()
    glTranslate(4,0,0)
    drawSquare()

def drawSquare():
    glBegin(GL_QUADS)
    glVertex(0,0,0)
    glVertex(0,1,0)
    glVertex(1,1,0)
    glVertex(1,0,0)
    glEnd()
```

- Explain the concept of a *display list* in OpenGL (0.2)-
- Describe, as detailed as you can, how a renderer maps a scene graph to an image. (1.0)

THE END!