

- Describe 2 methods for implementing lossless compression
- What is the Nyquist-Shannon sampling theorem and how does it relate to aliasing?
- Explain ambient, diffuse, and specular components of lighting in the context of an example to illustrate how the colour of a fragment is evaluated.

6. What are triangle strips and why are they important?
7. What is the intuition behind HSV colour? What colour is produced with the following HSV specifications?: **(a)** (60,0,100) and **(b)** (180,100,0)
8. How is a 3D model converted to a 2D image? What steps are involved?

9. What are 2 ways to solve the “hidden/visible” surface problem. What do they require?
10. In our in-class coding example that compared rotation of the model and rotation of the camera coordinates, why was the “inverse” button needed? Explain what it did.
11. Explain the identity matrix as a rotation matrix.

12. What do these expressions determine? $\text{float } K_d = \max(\text{dot}(L, N), 0.0)$; $\text{float } K_s = \text{pow}(\max(\text{dot}(N, H), 0.0), \text{uShininess})$. What does it mean if these variables are set to 0?

13. What is the difference between a point light and a directional light? How does this difference impact lighting calculations?

14. What is the difference between bump mapping and texture mapping?

15. What is a Normal Matrix and when is it necessary?

16. What is the purpose of the TBN (Tangent-Bitangent-Normal) basis in bump mapping?

17. In Assignment 2, you created a representation of a Sierpinski Triangle using 9 cubes. How would you expand it from 9 to 27 cubes?

18. Describe the workings of the fragment shader for Assignment 4, which used per-fragment lighting and texture mapping

19. Describe an implementation of a fly-by of a model, like Assignment 3, where the eye and lookAt points both change but the relationship between them remains constant.

20. When can quadrilaterals be used unambiguously in models? How can you test for this condition?

21. Describe at a conceptual level 2 uses of framebuffers that we considered in class (we discussed more than 2)