1) Who developed the first interactive computer animation system:
   Ivan Sutherland at MIT
   Alvy Ray Smith At the University of Utah
   Marceli Wein and Nestor Burtnyk at the NRC

2) What is the value of $\tan \left( \frac{\pi}{4} \right)$?

3) Which of the following operation(s) is/are commutative:
   Vector addition
   Vector subtraction
   Dot Product
   Cross product
   Multiplication of a vector by a number.

4) Does the equality $\mathbf{a} \times (\mathbf{b} \times \mathbf{c}) = (\mathbf{a} \times \mathbf{b}) \times \mathbf{c}$ hold for any vectors $\mathbf{a}, \mathbf{b}, \mathbf{c}$? Some vectors? Never? Justify your answer.

5) Consider vectors defined as follows:

   ```
   struct V3f
   {
       float x, y, z;
       V3f(float x1, float y1, float z1) {x=x1; y=y1; z = z1}
       V3f() {x=0; y=0; z=0}
   };
   ```

   Define the overloaded operator * for computing the dot product of two vectors in C++.
6) Write the transformation matrix for rotating by angle $\alpha$ around the $y$ axis in 3D.

7) Point $P$ has homogeneous coordinates $[1 \ 2 \ 3 \ 4]^T$. What are its $x, y, z$ coordinates in 3D?

7) Which of the following operation(s) can be performed as matrix multiplication without using homogeneous coordinates:
   Translation
   Scaling with respect to the origin of the coordinate system
   Parallel projection
   Perspective projection
   Rotation with respect to the origin of the coordinate system

8) What is Rodrigues’s formula for?

9) What are the normalized device coordinates (NDC)?

10) Oblique projections are a special case of:
    Orthographic projections
    Parallel projections
    One-point perspective
    Two-point perspective
    Three-point perspective